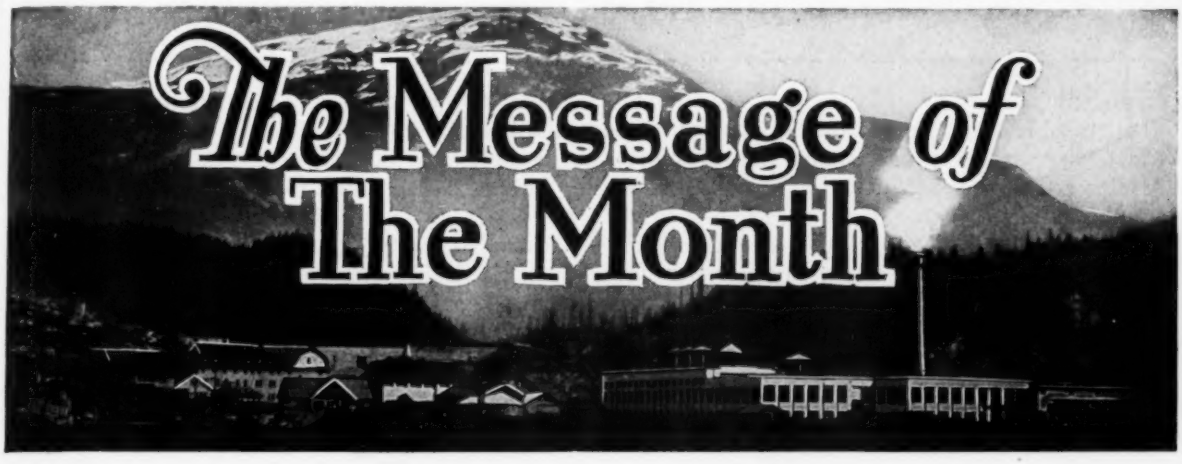

Mill Men Get Together!

IT is apparent from reliable evidence that is now appearing that the bottom of the industrial depression in the country has been reached and that the trend of industrial and commercial operations from now on will be upward.

In the past twelve months, commerce and industry have swung from a gross overproduction of commodities to what we believe now is a drastic curtailment of commodity production.

This was necessary because it was the gross overproduction of commodities and the herculean attempts made by the overproducers to force them on to the market that resulted in the price-cutting war of the past year.

The drastic price-cutting era resulted in driving commodity production to a below-cost basis which was the immediate cause of the stock market collapse. During the past year, the stock market has continued to go down due to the fact that industry had not righted itself and the commodity production in the majority of the industries was unable to get its cost back, much less pay dividends to its investors.

Now, it is unthinkable that American industry should be unprofitable. Industry cannot indefinitely continue to operate on a nonprofitable basis any more than an individual can continue to live when his healthy blood-making apparatus refuses to function. Industry must make a profit in order to live and American industry will get back to a profit-making basis.

The evidence that the turn has come is found by watching the various divisions of industry clean house and improve their situations. The rubber industry, for instance, has curtailed its overproduction and has made its adjustment of rubber supplies to the demand with the result that prices already have not only hardened, but have begun to advance. The textile industry is another. The steel industry has curtailed its production to demand and is in a receptive position for the general trade pick-up which lies directly ahead of us.

The formula, which seems to have been adopted by the various industrial groups is as follows:

First: No more investment of money in new machines, new mills or factories for increased production.

Second: Liquidation of surplus stocks in industry.

Third: Curtailment of potential capacity to demand.

Fourth: Price advances.

Throughout the rank and file of commerce and industry, the above formula seems to have found general acceptance. Advices are at hand showing that the various divisions of industry are getting together in groups within the industry and adopting the above formula, putting it into operation and remedying their nonprofitable situation. It only remains for those industries which have not as yet actively adopted the formula, to do so and comply whole-heartedly and honestly with the units of the industry in putting it into actual practice, in order to contribute to the general reconstruction and readjustment of industry in the United States.

The paper industry has been tardy in putting

E D I T O R I A L

its industrial house in order. However, there are unmistakable signs of constructive action. The kraft paper industry has appointed a committee of nine representatives of leading producing mills which has met and considered the above formula, and already eradicated certain vicious nonprofitable practices. As a result of its efforts, backed by the hearty co-operation of the distributors in the United States, it has inaugurated a price level which has been maintained without cuts for over 30 days.

This is a signal, constructive accomplishment. It is not to be expected that all overproduction ills and nonprofitable trade practices that have grown out of the gross overproduction in the paper industry, will be remedied at once. The Committee of Nine is to be congratulated upon its initial accomplishment.

Paper is a basic essential commodity. Industry, commerce and education are vitally dependent upon a continuous supply of it. Every man, woman and child in America must use paper in some form or other—no household in America can get along without it.

There is no economic or commercial reason on earth why it should be produced and supplied at a loss. There is every economic and commercial reason why it should be made and supplied only at a profit.

The way to profitable production lies solely in the power of the leading producers. Their compliance with the economic formula, which has been herein stated and which has been adopted by other industrial groups and solved their problems, will also solve the paper industry's problems.

It is just a question of getting together.

The Committee of Nine represents the best brain power and intelligent management in the paper industry.

The entire industry is prepared to follow this committee's lead in getting the industry back to a profitable basis.

Consumers of paper want the producers to make a profit.

The merchants and distributors of paper demand that the mills make a profit.

There is no commercial barrier that prevents the industry from profit and prosperity, except the one lone exhibition, existent within the producing group alone—and they are the ones who are taking an awful financial licking.

The tragedy of it is that it is entirely unnecessary.

Mill men get together!

Stop building more machines and mills for the time being.

Curtail your production to your orders in hand.

Refuse to take future contracts and orders at present below-cost levels.

Raise your price level to a profitable basis and maintain it inviolately and the whole industry, the whole country and your Government will support and commend you.

Thanksgiving and the Unemployed

SINCE our Pilgrim Fathers celebrated the first Thanksgiving Day, this holiday has been observed as a time of feasting to symbolize the bounty of the harvest, and in worship to express profound thanks to the Giver of all Good for blessings received. It is a time when we pause on the threshold of the holiday season to indulge in thoughtful retrospection of all the things we have enjoyed.

True thankfulness is rightly expressed in good deeds, and at this Thanksgiving season no greater opportunity has ever been afforded the people of our nation to fittingly express their gratitude for the comforts and blessings of life. Thousands of our fellowmen will feel little cause to be thankful; for them there has been no harvest; conditions beyond their control have deprived them of the right to provide for themselves and their families the necessities of life. To multitudes of our citizens who have in more prosperous times given unsparingly of their efforts and means to support our country and its great industries has come destitution.

In nearly every city and community of our land movements are being founded and charitable organizations taxed to provide relief for the unemployed. Immediate assistance is imperative and the response has been gratifying, for the American people are ever alert to the need of humanity. But is this not dealing with the effect rather than the cause?

Large numbers of workers are still being laid off, adding to the ranks of the unemployed. Corporations are announcing special plans to alleviate distress, and contributions continue to pour into organized charities.

Prosperity still reigns in this great country in which we live, but industry, the lifeblood of our nation, seems to have temporarily lost its mo-

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E D I T O R I A L

mentum. This must be restored and the masses of the unemployed given a right to be self-supporting. The people of America are independent; they are a nation of workers with a desire to earn their way, and although they are ever and unceasingly grateful for material assistance in times of need, the acceptance of charity weakens their morale and forms an added burden in their struggle to regain independence.

For charity we might substitute the words love, benevolence and good will. To those of us, then, who are fortunate enough to have reaped a harvest, who have not felt the lack of the comforts of life, is offered the opportunity to be truly thankful by putting into practice the Golden Rule, those words of the great Teacher which have brought inspiration and good into so many lives.

Wherever possible, let your contribution be a job, that helping hand which allows a man to help himself. This will bring peace of mind to multitudes of our people and preserve the happiness of thousands of homes. It will keep the wheels of industry moving and help to turn the tide of depression into an era of prosperity.

Relation of the Paper Industry to Forestry

"THE world's paper industry is unique; it stands to-day in an enviable position among great industries. But even so it is merely on the verge of the possibilities that lie ahead of it. Its brilliant prospects, wholly aside from its inherent adaptation to business-like forestry, foreordain for it an outstanding prominence in the establishment of American forestry. If forestry is in any important way dependent upon the production and consumption of forest products; if it is commercial, an understanding of competitive alinements in the manufacture of paper may direct the untangling of our not-so-clear conception as to what forestry is all about."

In these words, taken from an address made by Charles W. Boyce at a meeting of the Upper Peninsula Development Bureau at Marquette, Mich., the secretary of the American Paper and Pulp Association suggests the relation of the paper industry to forestry, and follows with a statement of the effects of overproduction of pulpwood and wood pulp on stability in business, which is of timely interest. Although he does not touch definitely on conditions in the southern and Pacific Coast States which are influencing the present demoralization of the pulp market, consequent on the neglect of some producers to conserve resources for future operations, it is impossible to resist the impression that Mr. Boyce had this in mind.

More pulp is now being made in the United States, notwithstanding a reported actual decrease in the consumption of spruce wood. This is accounted for by new production, using new woods in new regions, particularly in the southern states and on the Pacific Coast.

The position of the wood pulp market to-day is vividly described by Mr. Boyce, who points out that coincident with the increase in pulp production in the United States, production increases occurred in Sweden, Norway and Finland, amounting to a total which in itself was sufficient to meet the growing needs of the American market. The result of this expansion was a preponderance of supply over demand and, as Mr. Boyce points out, "prices of pulp and many paper grades have felt the accumulated oversupply and have tumbled out of control. The hysteria of price war has broken down any semblance of balance in the use of production capacity. Overproduction, which has long lurked in the business field, has broken all bonds of applied restraint, and there exists to-day in the pulp industry a far-flung struggle. The main battleground is the American market. Importers struggle not only to hold the business that has been profitable to them in the past, but also to obtain a larger share for which they have already added production facilities. Domestic producers in the South and West are fighting to obtain new and wider market outlets."

Signs are not wanting that leading manufacturers of pulp and paper are now alive to the necessity of controlling the overproduction which is so destructive of continuity and stability in business. In regard to forestry it is suggested that a means to bring about adjustments between supply and demand in the wood-using industries would require co-operation between governmental and private agencies through the formation of a national organization in which private forest owners and the U. S. Forest Service might be represented, as well as state authorities, who could be depended upon to work together in harmony to eliminate the handicaps to normal and fair competition in forestry. An economic organization of the kind proposed would doubtless receive the support of all paper manufacturing firms who control their own pulpwood tracts.

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A Century of Progress

A Romantic Presentation of Man's Discoveries and Achievements Will be Depicted in World's Greatest Fair at Chicago in 1933

View of the East Facade of the Administration Building of Chicago's Century of Progress Exposition, with its terraces stepping down to the edge of the water in the North Lagoon. The building, which will be only two stories high on its western side, was designed by the three Chicago members of the World's fair architectural commission—Edward H. Bennett, Hubert Burnham and John A. Holabird.

THE new world's fair is making highly commendable progress in preparation of grounds, erection of buildings and preparation of displays. There are definite reasons which lie back of this advancement of a great world's exposition. Primarily, the foundation work was carefully done. About 250 citizens of the Chicago area donated outright a $1,000 apiece to help pay the preliminary expenses of the organization. These donors became Founder Members of the Illinois Corporation, "A Century of Progress," which was chartered not for profit. The entire enterprise was conceived and started as a great public benefit.

In order that the organization might have money with which to begin the work of the fair, the trustees of the corporation authorized an issue of $10,000,000 in gold bonds. These are doubly secured; first by a pledge of 40 per cent of the general admissions; and then by guarantees of definite amounts by strong individuals and corporations. These guarantees quickly amounted to more than the total authorized issue. In the fall of 1929, about $6,000,000 worth of these bonds were placed, in order to provide for the necessary expenses on grounds and buildings during the past year and in the months immediately ahead.

This enabled the organization to go ahead vigorously with exposition plans and preparations, without asking or expecting political subsidies from the federal, state, or municipal governments. It is the first time in the history of fairs and expositions when initial financing was done privately.

In the third place, a business organization adapted

to illustrate the progress of the century in management engineering, had to be created. By the help of experts from some of Chicago's largest corporations this organization has been scientifically built.

This world's fair is not a mere local celebration. That idea was twice raised and officially dropped and the world was notified that there would be no second World's Fair in Chicago. When the idea was taken up a third time, those who consented to become responsible before the world for its success were confronted by several undoubted facts:

(a) Trade has created its own continuous fairs and expositions in great department stores, marts and exchanges, and in a procession of trade shows in all parts of the nation. This fact made it certain that the commercial interests, which formerly functioned almost exclusively in occasional great expositions, could not be brought back to a type of exposition clearly out of date.

(b) The century in which Chicago grew from a desolate waste to the third largest city in the world, almost exactly covers the period during which the physical sciences have been developed and have given to the world what is often called, "The Industrial Age."

The victories of science—of pure science in the enrichment of knowledge, of applied sciences in the creation and extension of industries, and of the social sciences operating to ameliorate human conditions—all these victorious achievements are worthy of celebration. This is the first occasion when they will be drawn together in a celebration worthy of the modern world.

The National Reseach Council composed of the nation's leaders in the physical sciences and scientific arts, approved the idea of making science the center of the exposition and agreed to sponsor it. Through its forty-two subcommittees of a World's Fair Advisory Committee, more than 400 of the most eminent minds of this nation have been helping to prepare the scenario for displays of human progress since 1830.

The National Social Science Research Council is actively engaged in laying out the ground work of displays, harmonious with those of the physical sciences, to fill out the picture of progress as affected by the social sciences.

The new world's fair is taking shape, precisely as its name indicates, as a romantic presentation of the world's progress during the last century.

Exposition Buildings Already Finished and in Immediate Preparation

The Administration Building was the first of the exposition structures to be completed. It is in the shape of a great "E," having a front of 340 feet on the outer drive, with the wings extending back about 150 feet to the east. The nature of the ground makes the eastern front especially susceptible to architectural treatment. The building houses the world's fair staff, provides a corridor for pre-fair displays, a large room for the trustees, and commodious offices for the president and other officers of the exposition. The next building to be completed is a reproduction of Fort Dearborn. For historical purposes, this building was built according to the original plans of Captain John Whistler, when the first fort was built in 1803-4. A look to the northwest, across this stockade to the scintillating towers of Chicago's business district, gives in one view a graphic picture of the material progress of the century.

The buildings of the Travel and Transport show are to be completed as rapidly as weather permits. Standard display space is provided in a building 1,070 feet long, 140 feet wide, two stories in height. Within part of this structure a full-sized section of a model ocean-going liner is to be housed. The roof over this section is trussed, in order to make the space below free from columns and pillars. The other building, practically separate from the main exposition building, is one of the most unique structures which has been planned up to the present for the exposition. It is 305 feet in diameter on the ground. At a height of about 25 feet, a dome is raised, probably the largest dome which has ever yet been built. It is 125 feet in height and about 200 feet in diameter. The unique feature of its construction is that its support is wholly from the outside leaving the interior entirely free from braces and trusses and all other supports.

From the tops of 12 ornamental pillars which are part of the external framework, an inverted dome of ropes extends to the central segment of the dome where it is anchored. It is an unusual use of the catenary principle which is in common use in bridge construction. The supporting pillars are firmly anchored by back stays buried in concrete spreads beneath the surface. This Travel and Transport show will display the successive steps by which crude means of transportation have been developed into the amazing facilities by which waterways, highways, railways, and airways contribute so greatly to the wealth and pleasure, to the convenience and enjoyment of the modern world.

A three-mile driveway is being built by the exposition on the west side of the grounds parallel to the Illinois Central tracks. Two 35-foot drives, with a 14-foot parkway between, will replace the public use of Leif Erickson Drive, north of Thirty-ninth street. This outer drive, as soon as the new highway is completed, will become the main traffic artery within the exposition grounds.

Nature of the Exposition

The spirit of the exposition is that of bringing a great intelligent public face to face with the fundamental facts of human life and existence, facts which have heretofore been largely the exclusive property of technical students in the arts and sciences.

The history of man's conquests within the physical world, thrills throughout with adventure and romance—it is a story of personal courage and of heroic bravery. It includes the sacrifices and determinations of the pioneers in the business world and in industry, as well as the pioneer efforts made by thinkers to extend human knowledge.

Underneath all progress, in the facilities and conveniences of existence, has been the work of discovering and isolating the sources of power in the physical world; the invention of harnesses, at once so delicate and so strong, as to capture and bring under human control the forces once discovered. Then the genius and daring of business giants who, many of them, have thrown almost superhuman energies into the work of lifting the levels of human life by means of business enterprises.

The idea of making this epic a graphic story, an acted panorama, a series of practical operations, in many of which visitors and guests take actual part is the very concept of the world's fair.

Competitive exhibits, have been a characteristic of former expositions. In the new world's fair the idea of collaboration takes the place of competition, and as many of the larger exhibits, as can be so arranged, are made by the joint efforts of industries and interests.

The aim of the new world's fair is most directly educational. To learn by doing, to see actual achievements and accomplishments wrought out and, where possible, to take personal part in the operations, is a method compatible with the highest of educational aims. To exalt constructive thinking in the minds of millions, to bring to attention of people face to face, sometimes hand to hand, the processes by which human progress is wrought—such is the goal of "A Century of Progress" Exposition.

A conception for one of the proposed exhibition halls of Chicago's Century of Progress Exposition as presented by Paul Cret, Philadelphia member of the World's Fair architectural commission. It suggests a modern treatment in its simplicity and system of "set backs". The unusual opportunity of having both land and water gives play to the imagination in the arrangement of bridges, landings, ramps and terraces

During the past decades, industry has become a most generous patron of science. Few, if any, of the major industries would think of operating without scientific laboratories to furnish the knowledge and stimulate the skill to continue the industries in their forward progress.

Great endowments have been provided by industrialists for scientific laboratories in colleges and universities. In many ways by personal encouragement and timely help, the industries of the nation have set our academic equipment far ahead of anything the world could have conceived a century ago.

It is fully merited that industry should be the conspicuous sponsor, patron and exhibitor at an exposition, whose aim is to make clear and widely known the dependence of mankind upon Thinkers and Doers for continued existence and joy in living.

Pulverized Coal or Automatic Stokers?

Comparison of Their Use in Industrial Boiler Plants

By SAMUEL M. GREEN
Consulting Engineer, Springfield, Mass.

TO decide upon the best steam generating apparatus for any particular industry, one must be thoroughly familiar with the particular plant to be equipped. Upon the preliminary study of each individual plant and the proper interpretation of the results of such study depends whether the equipment will produce the most economical results or be merely a plant to produce steam.

Public service plants have to meet essentially the same requirements and vary principally in size. Industrial plants, however, must meet widely different conditions, not only in the many different industries but also within one industry.

This paper relates to boilers and their auxiliary equipment as applied to industrial uses only.

In 1923, I installed one of the first large industrial steam plants using pulverized coal. At that time, its use was comparatively new and the automatic stoker had not been brought to its present perfection.

Since that time, many plants have been equipped for use of pulverized coal and also automatic stokers,

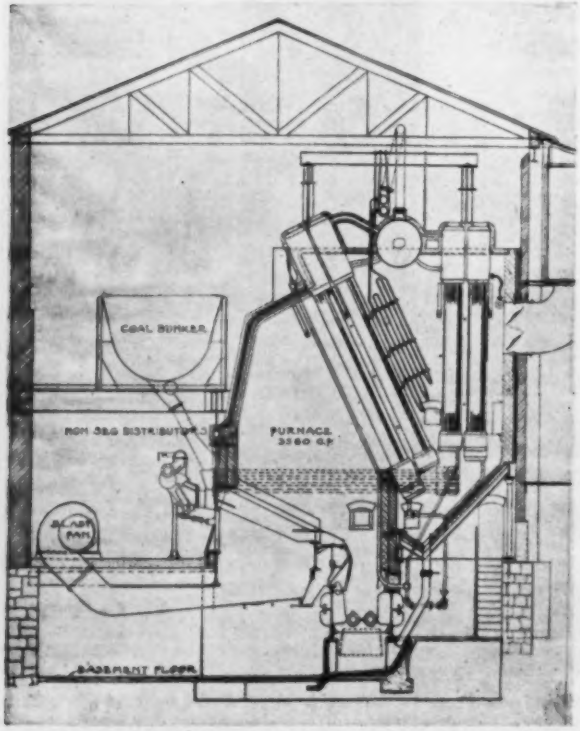


Fig. 1—Section of 1,000 hp. boiler setting for stoker firing

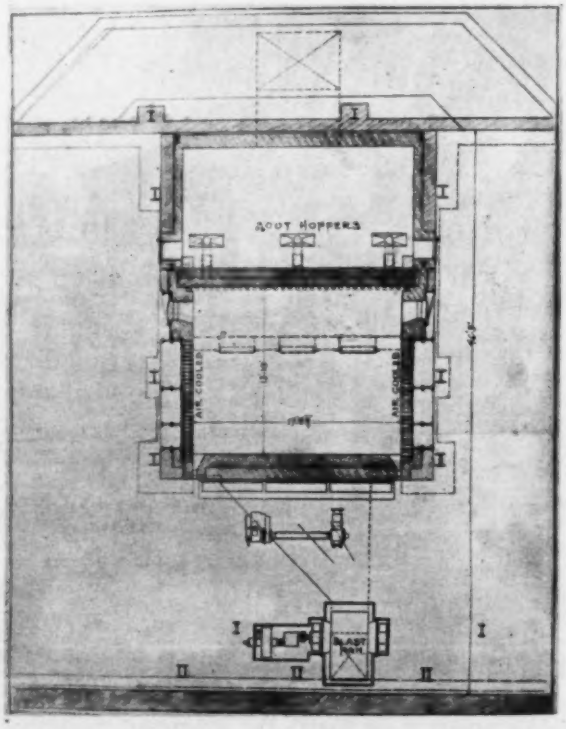


Fig. 2—Plan of 1,000 hp. boiler setting for stoker firing

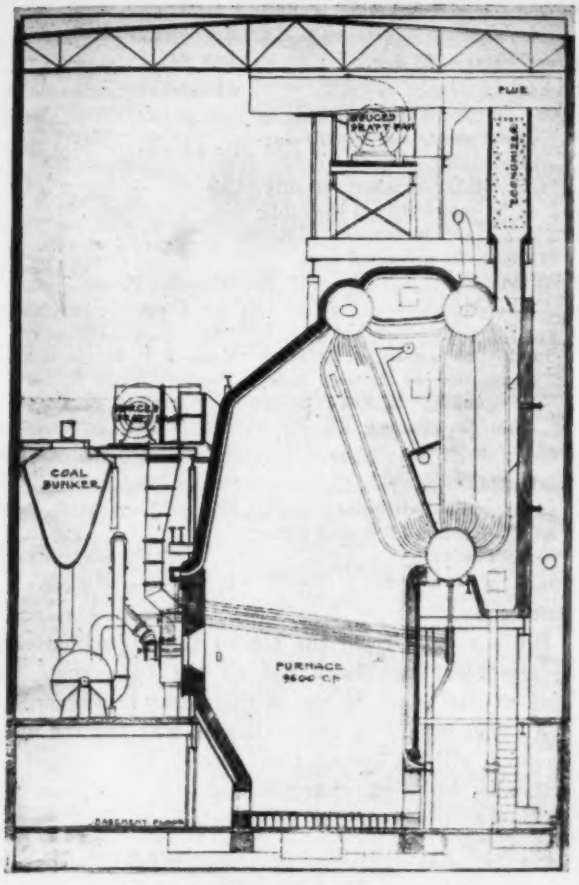


Fig. 3—Section of 1,000 hp. boiler setting for pulverized coal

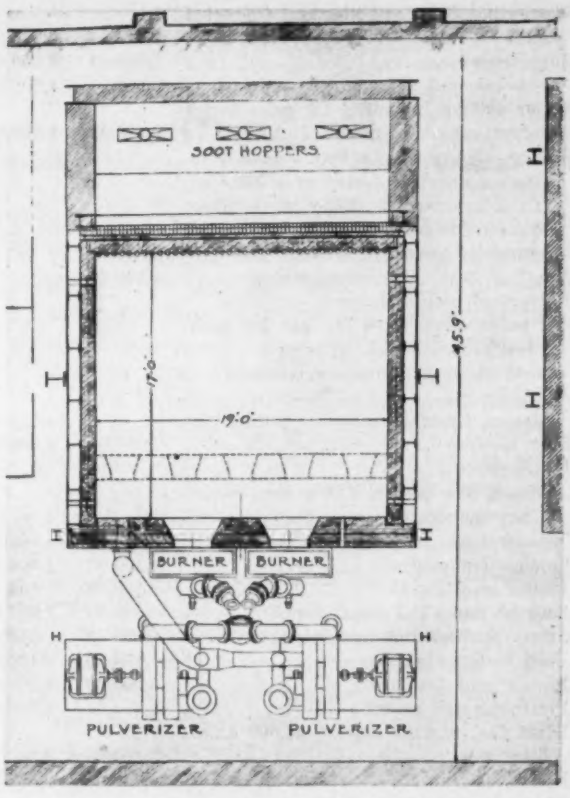


Fig. 4—Plan of 1,000 hp. boiler setting for pulverized coal

but the controversy between the advocates of these two systems still goes on.

When an engineer is called upon to design a steam generating plant for an industry, practically the first question asked by the owner is: "Do you advocate the use of pulverized coal or automatic stokers?" If the engineer expresses a strong preference for one or the other, then the next question is: "WHY?"; and unless he is thoroughly familiar with the conditions of the particular plant, and especially the personal preferences, he will have his job cut out for him then and there.

I designed and supervised the installation of two boilers in 1927 of the same size, make and operating pressure—one equipped with automatic stoker and one with coal pulverizers. One was installed for Joseph Bancroft & Sons Company, Wilmington, Del., textile bleachers, dyers, and finishers; and one for the Fitchburg Paper Company, Fitchburg, Mass., makers of book papers. I have recently designed and am supervising the installation of practically a duplication of this equipment for the same companies.

A comparison of the cost of the last installations and the reasons for use of stokers in one instance and coal pulverizers in the other may be of interest.

In setting up the comparison of cost, I have not in all cases used the exact equipment installed at each plant as that would not give an exact cost comparison; for instance, the boiler used at Wilmington was a Bigelow-Hornsby and at Fitchburg a Bigelow-Connelly. I have used the cost of the Bigelow-Connelly boiler in both cases, thus eliminating any variation in cost of the boiler proper. Likewise, I have omitted apparatus that was installed in one plant and not in the other, such as economizers, flues (not common to both), etc. I have included piping, as its cost was practically the same in both instances. Ash, coal conveying and bunker equipment are not included as such equipment depends upon local conditions.

Comparison of Cost

	No. 1 Bancroft	No. 2 Fitchburg
Excavation	$ 1,300.00	$ 1,300.00
Concrete reinforced foundation below grade	600.00	600.00
Concrete setting walls above grade	2,580.00	
Concrete floors basement and boiler room	1,200.00	1,200.00
Boiler delivered and erected, including slag screen, rear wall protection and front water wall	20,500.00	20,500.00
Drake armor-clad for rear wall water tubes	1,700.00	
Ash pit doors	200.00	380.00

Supporting steel for boiler and air-cooled walls	4,050.00	6,050.00
Superheater	5,000.00	5,000.00
Air-cooled wall refractory and brackets	2,100.00	4,200.00
Boiler setting including all refractories except air-cooled wall	8,400.00	9,300.00
Stoker—29 tuyere, 10 retort, double 14-in. crusher rolls; projected area 240.8 sq. ft.; steam turbine stoker drive direct connected; crusher rolls driven by hydraulic motor; overspeed governor	18,800.00	
Non-Seg coal distributor (three)	1,500.00	
Pulverized coal equipment— 2 pulverizers, 6,000 lbs. per hr. each; 2 low pressure coal burners; Coal piping from pulverizers to burners; Motors direct connected to pulverizers		14,250.00
Soot blowers	2,000.00	2,000.00
Instruments— Steam flow meter, CO_2 meter, multi-pointer draft gauge, flue gas temperature recorders	1,600.00	1,600.00
Combustion control	1,100.00	1,400.00
Liquid level gauge	190.00	190.00
Soot pit gates and metal hoppers	900.00	900.00
Steam purifier and deconcentrator	950.00	950.00
Feed water regulator	190.00	190.00
Piping and insulation	5,000.00	5,000.00
Platforms and stairs	1,500.00	1,500.00
Blast fan, turbine driven, 35,000 c.f.m., 6-in. w.g.	3,300.00	3,300.00
Flue	2,450.00	2,450.00
Blast duct work including return air from air-cooled walls		1,100.00
Blast duct work not including return air from air-cooled walls	1,800.00	
Total	$88,910.00	$83,360.00
Induced draft fan, 47,000 c.f.m., 65 b.h.p., motor driven		$ 2,600.00
Steel supports		600.00
Economizer		11,500.00
Extra flue		600.00
		$15,300.00

The economizer and necessary fan increase the guaranteed efficiency at 200 per cent of rating from 78 per cent to 83.6 per cent and this shows a gross saving of about $8,000.00 per year.

JOSEPH BANCROFT & SONS COMPANY

See Figs. 1 and 2

Detail of Installation

Boiler:	The Bigelow Company
1,013 hp. Bigelow-Hornsby boiler, 250 lbs. working pressure	
Slag screen and rear water wall combined	
Front water wall	
Rear water wall equipped with Drake armor clad protection	
Sq. ft. heating surface boiler 10,126 sq. ft.	
Sq. ft. tube surface front water wall 479 sq. ft.	
Sq. ft. tube surface in slag screen 530 sq. ft.	
Sq. ft. tube surface in bridge wall 340 sq. ft.	
Furnace—air-cooled side walls—design	Bigelow-Liptak Corp.
Superheater—125 deg.	The Superheater Co.
Stoker:	American Engineering Co.
One 29 tuyere stoker driven by direct connected steam turbine, 14-in. clinker crusher roll driven by motor driven hydraulic pump and motor, 240.8 sq. ft. projected area	
Soot blower	Diamond Power Spec. Corp.
Blast Fan:	
Sturtevant fan driven by Terry steam turbine through reduction gears; capacity 35,000 c.f.m. @ 6-in. w.g.	Fan—B. F. Sturtevant Co. Turbine-Terry Steam Turbine Co.
Induced draft fan—None	
Combustion control	Hagan Corporation
Non-Seg coal distributors	Rolland Gardner & Co.
Blast ducts, smoke flue and piping —installation by	B. F. Shaw Company
Insulation	B. F. Shaw Company
Boiler setting	Rust Engineering Co.

Hot air flues from the top of the air-cooled wall to the blast fan have not as yet been installed. Test will be made to see if their cost is warranted.

An economizer or air preheater was not installed because either installation would have required extensive building changes and the cost was not warranted by saving to be effected.

FITCHBURG PAPER COMPANY

See Figs. 3 and 4

Detail of Installation

Boiler:	The Bigelow Company
1,083 hp. Bigelow-Connelly boiler, 250 lbs. working pressure	
Slag screen	
Rear water wall and front water wall	
Sq. ft. heating surface boiler 10,830 sq. ft.	
Sq. ft. heating surface rear and front wall 1,408 sq. ft.	
Total sq. ft. heating surface 12,238 sq. ft.	
Furnace:	
Air-cooled side walls and front water wall below burners. Design	Bigelow-Liptak Corp.
Bottom air-cooled	
Superheater—150 deg. Fahr.	Foster-Wheeler Corp.
Economizer—5,184 sq. ft.	Foster-Wheeler Corp.
Pulverizers:	Riley Stoker Corp.
Two with two burners	
Capacity 6,000 lb. coal per hour each	
Driven by two 50 hp. motors direct connected	
Soot blowers	Diamond Power Spec. Corp.
Blast fan:	
Capacity 35,000 c.f.m.	Buffalo Forge Co.
Driven by 25 hp. four-speed Reliance motor	

Induced draft fan: Capacity 47,000 c.f.m. Driven by 75 hp. three-speed Reliance motor	Buffalo Forge Co.
Combustion control	A. W. Cash Co.
Blast ducts, smoke flue, piping and insulation by	The Jennison Co.
Boiler setting by	Rust Engineering Co.

The Riley Stoker Corporation guarantees to operate the boiler at 300 per cent rating without slagging in the furnace.

About 90 per cent of the air required for combustion is drawn by the blast fan through the bottom of the furnace and side walls and is delivered to the burners.

The air required for carrying the coal through the pulverizers and into the furnace is drawn from the furnace and is mixed with air from the boiler room to reduce its temperature to about 300 deg. Fahr. This heated air helps to maintain a low moisture content in the coal.

An explanation of certain items included in the cost of installation follows. Reference is made to the estimates by column numbers.

Column No. 1 lists concrete foundation and concrete setting wall. Column No. 2 lists a concrete foundation only. This is because in an automatic stoker setting, the walls below the stoker line carry the weight of the stoker and are not of refractory material, whereas in a setting for burning pulverized coal, the refractory goes to the basement grade, providing the larger furnace necessary for pulverized coal.

This is also the reason that the steel and air-cooled wall refractories cost less in No. 1 than in No. 2.

In No. 1 Non-seg distributors are included as they are necessary to maintain an even fire on the stoker.

Each of these boilers will usually operate at about 200 per cent rating. The pulverizers are in duplicate and either will operate the boiler to 200 per cent rating with coal having not more than five per cent moisture. Either pulverizer can be repaired while the other is operating. In this plant, this duplication is of great advantage. An accident to a stoker would shut the boiler down and the setting would have to cool before repairs could be made. In comparing the cost of installation, this duplication should be taken into account.

The Bancroft Company installed stokers for the following reasons:

Their boiler plant used stokers previous to the last two installations.

The owners live in a large park on a plateau about 100 feet above the plant and adjacent thereto. They feared that the fine ash which is discharged from a chimney when pulverized coal is used would cause trouble in their neighborhood.

The ash from this boiler plant is removed by the railroad without cost as it is used for filling. The railroad would not continue this free service if ash from the pulverized coal had to be removed as it could not be used for fill.

The Fitchburg Paper Company installed pulverizing equipment for the following reasons:

They had some years ago an unfortunate experience with stokers. I do not know whether this was due to improper equipment or installation, or both. They then installed an equipment for burning pulverized coal under three h.r.t. boilers. It was only fairly successful.

When the owners decided to install new boilers, extended investigations were made by their plant engineer, Mr. E. B. Wright, and myself, and upon the result of these investigations the owners decided to use pulverized coal. The first boiler and setting were designed for operation at 200 per cent rating. The setting for the second boiler is designed for 300 per cent operation.

Although, as is usual when pulverized coal is burned, a very large proportion of ash goes up the stack, at this particular plant no complaint has been made because of this fact as the plant is in an open country.

Stoker Efficiency Guarantees:

Boiler Rating	Flue Gas Temperature	Efficiency
1,000 b.h.p.	490° deg.	82 %
2,000 b.h.p.	577° deg.	80.25%
3,000 b.h.p.	700° deg.	76.5 %

Air Required 70°F.

Boiler Rating	Static Pressure	H.P.	C.F.M.
100%	1.0 inch	2.5	9,500
200%	2.4 inch	11.7	19,300
300%	4.0 inch	33.5	30,500

Power To Drive Stoker and Crusher Rolls:

When burning 6,000 lb. coal per hour—2.5 hp.

Pulverized Coal Efficiency Guarantees:

Boiler Rating	Flue Gas Temp.	Efficiency Without Economizer	Efficiency With Economizer
1,000 b.h.p.	490 deg. F.	80%	84.6%
2,000 b.h.p.	550 deg. F.	78%	83.6%
3,000 b.h.p.	650 deg. F.	74%	82.2%

Horse Power Required Per Ton of Coal Pulverized:

2,000 lb. coal per hour	28.5 h.p. per ton
4,000 " " " "	17.4 " " "
6,000 " " " "	14.3 " " "

Fineness—Per cent Passing Each Screen:

75%	200 mesh screen
90%	100 " "
97%	50 " "

Air Required 70°F

Boiler Rating	Static Pressure	H.P.	C.F.M.
100%	1.0 inch	2.4	10,000
200%	1.25 inch	6.4	20,000
300%	1.5 inch	14.0	30,000

I believe that at the present time either system may be installed without fear of making a grave mistake, assuming that the apparatus is properly designed and installed to meet the particular plant conditions.

The cost of installing either system is shown to be approximately the same although the pulverizing

equipment is nearly in duplicate which adds considerable to its value.

The stoker manufacturer guarantees better operating efficiency than the manufacturer of pulverized coal equipment. My experience indicates that either system with careful oversight will give about the same efficiency, although it is more difficult to maintain a uniform high efficiency with stokers because of the manual labor involved in their operation.

The excess power required to operate the pulverizing equipment over stokers is about 26 kilowatt when boilers are operating at 200 per cent rating. Unless power is a byproduct, this excess is an unfortunate handicap on the use of pulverized coal.

If boilers operate less than 24 hours per day, the loss in banking stoker fired boilers will probably be as great as the cost of the excess power required to operate a pulverizing equipment.

If pulverized coal fired boilers are located in a thickly settled area, then it may become necessary to eliminate the ash which is carried up the stack, amounting to about 50 per cent of the total ash. The equipment to catch this ash is somewhat expensive to install and operate.

Boilers may be operated at much lower ratings with stokers than with pulverized coal. In some cases, this is an important consideration.

The cost of ordinary repairs is about the same per ton of coal burned for each system. Extraordinary repairs are more liable to occur with stokers.

Unless careful thought is given to the design of furnaces for burning pulverized coal, great difficulty may be experienced with clinkers.

I am not impressed with the statement so often made, that any kind of coal can be burned with pulverizing equipment. Stokers will burn as wide a variety of coal as need be considered.

Operating results cannot be given at the present time as only one boiler has been started and the other one will be in operation in a few weeks from now. When both boilers are operating, I shall determine the operating efficiency of each and hope the results as I find them will be of interest.

There has recently appeared on the market a comparatively new method of burning coal under boilers which seems to have great possibilities of becoming a competitor against both automatic stokers and pulverized coal.

The Paper Trade of Cuba

By WILBUR T. GRACEY

THE island of Cuba—largest of the West Indian group—is of special interest to the American paper manufacturer as, by its proximity to our coast—only 90 miles from Key West—it is a natural outlet for our products.

About the size of Pennsylvania—125 miles at its widest point and 760 miles in length—it has a population of about 3,500,000, which is slowly growing at the rate of 40,000 annually; which is the excess of births over deaths; and about 40,000 white immigrants each year.

The majority of the inhabitants are of Spanish origin, and a large proportion of the business houses and manufacturing plants are owned by native Spaniards.

Seventy per cent of the population is white, the balance negro, and the foreign population—principally American, English and German—not counting Spanish subjects—is about 25,000. It is one of the most densely populated of the Latin-American republics with 73 persons to the square mile.

Another reason why this country is of special interest to our paper manufacturers is, that, since our intervention in 1899, the Cuban people have improved enormously in their literacy until at the present time over 60 per cent above the age of 10 years can read and write, and, while the language of the country is Spanish, many of the younger generation know English as well.

Furthermore, while we are Cuba's best market for the sale of her products—principally sugar, sirups, tobacco, cigars, citrus fruits and early vegetables—she is one of our best markets for machinery, textiles, shoes and paper products.

Printing, lithographing, papermaking and allied industries compose the most important manufacturing industry of the island—if we eliminate the sugar and tobacco manufacturies which are, in fact, agricultural.

Governmental figures showing the extent of the printing industry are not obtainable, but it is generally considered that the value of the products amount to more than $10,000,000 per annum.

While the business is largely in the hands of native-born Spaniards, who own the principal establishments in Habana, many of the small offices and printing plants in the interior cities are owned by Cubans.

An idea of the comparative value of the Cuban trade may be obtained by the figures of the total imports of all commodities in 1928, when we supplied $129,000,000, against the United Kingdom's $10,000,000, France's $9,600,000 and Germany's $6,500,000.

The export of paper products from the United States for the past four years was as follows:

	1926	1927	1928	1929
Newsprint	$306,078	$217,306	$139,563	$128,653
Uncoated book	315,078	240,201	351,493	370,890
Wrapping paper	293,129	286,304	182,557	251,002
Surface coated	162,020	148,236	165,992	185,097
Boxboard	125,555	154,142	116,775	121,533
Writing paper	241,933	374,411	413,193	249,567
Paper bags	246,761	264,540	43,998	71,850
Paper boxes and cartons	59,793	65,099	83,883	42,972
Envelopes	86,157	79,028	64,143	52,010
All other paper and mfgs.	802,717	718,322	701,306	430,361

Figures for the year 1929 were supplied by the Department of Commerce, and are preliminary, subject to revision before final publication. Under the items "All other paper and manufacturies" are included $12,603 worth of greaseproof and waterproof paper; $4,430 of vulcanized fiber sheets, strips, rods and tubes; $5,960 of cover paper; $31,142 tissue and crepe paper; $57,713 of toilet paper; $40,744 of paper towels and napkins; $27,583 of blotting paper; $29,730 of bristol and bristol board; $186,126 of other paperboard and strawboard; $22,392 of wall board of paper or paper pulp; and $12,028 of fiber insulated lath or board.

The latest figures which are available from Cuban sources are, unfortunately, two years old—those of 1927—as follows:

Paper and cardboard of all kinds:

United States	$2,541,508
Germany	557,508
Spain	193,684
France	72,254
United Kingdom	45,628
Other countries of Europe	457,057

These figures show that the great preponderance of the trade is in our hands.

Newsprint is supplied by Scandinavian countries, Spain's exports consist almost entirely of handmade writing paper and cigarette paper. Germany formerly held a good trade in coated book paper, envelopes, wrapping paper, cardboard and lithographic goods, and is now endeavoring to regain its losses, with some success.

The fact that trade has fallen off during the past few years—especially the last two—is owing to serious economic depression due to the low value of sugar—Cuba's principal commodity of export, and also, to a small extent, to a new tariff act which went into force in October 1927.

As a result of this, tariff imports of printed matter fell off considerably, and the demand for printing ink increased, the higher tariff having the effect of stimulating the local printing industry.

The demand for ink is for the cheaper varieties. Magazines, with large circulations, use this cheap ink—which they import direct or through American printing-ink firms who have their representatives in Cuba. Some American firms are now manufacturing ink in Cuba, from raw materials brought from the United States. Newspapers use this domestic ink, which is cheaper than the imported products.

The latest available data regarding imports show that about 550,000 pounds are imported annually with a valuation of approximately $60,000. We supply about $52,000 worth, Germany $5,000 and France, the Netherlands and the United Kingdom the balance. The German exports are principally lithographic ink.

Buyers and Consumers

There are 15 Spanish newspapers published in Habana, 3 official government papers, and 3 foreign-language papers. Circulation is, of course, small, as compared with our press, the Habana dailies selling from 15,000 to 35,000 copies. Advertising rates are low, and these papers are useful in a publicity campaign by any manufacturer, as many of them circulate throughout the entire republic.

In addition to the above, there are 26 weekly publications, several being of high class with colored illustrations. There are also several society journals, political papers and semi-monthly and monthly papers devoted to literary, social and political activities.

Outside of Habana there are 40 dailies and a large number of weeklies, nearly every town having at least one publication. These usually have small circulation probably averaging not more than 1,000 copies of each issue. A complete list of these can be obtained from the Department of Commerce in Washington.

The machinery used is almost entirely American, and many of the plants are quite up to date, some of the papers using as many as 16 typesetting machines. Gordon job presses are generally in use, and the bindery equipment—cutters, stitchers, etc., are American, with a few old German and French machined, now antiquated.

In the lithographic plants the machinery is French and German as well as American.

How Sold

Habana wholesalers import approximately 90 per cent of all printing and writing paper—with the exception of newsprint—which is usually purchased direct from the manufacturers, either from their plants in the United States, or from manufacturer's agents or branch offices in Habana. A certain amount is bought through New York and Cuban commission merchants.

The trade to the retailers, and small printers, is largely controlled by the wholesale houses. They carry very large stocks—sometimes as much as a $1,500,000 worth — probably greater than will

be found in most jobbing houses in this country.

Wrapping paper trade is mostly in the hands of Spanish houses who also carry large stocks, in the neighborhood of $1,000,000 in value. Orders for 750 tons of certain grades at one time are not considered excessive. This is purchased almost entirely through New York commission houses, terms are generally 30 to 60 days against documents. Some purchases are made for cash against documents, but this is unusual. Local terms are supposed to be 30 days, but customers generally are slow in paying, and 60 days is the usual custom.

Local Manufacture

Paper locally manufactured is principally cheap wrapping paper made from old newspapers, jute bagging, colored rags and groundwood. Some better grade wrapping paper is manufactured, sacks are produced, and some cheap white sulphite paper is made into envelopes. Other locally made products are toilet paper, heavy tissue, and serpentines—for which there is a large demand in the winter and at the carnival season.

Bureau of Engraving and Printing

The government department which makes postage, revenue and guaranty stamps and postal cards, purchases considerable quantities of paper products. The machinery in use is similar to that of our own Bureau. The paper most in demand being of wood pulp, machine finished quality, which is imported from the United States and is purchased on contracts covering a period of years.

Printing Paper

Newsprint, and other papers, are kept in stock by Habana jobbers and manufacturer's representatives, principally because of the uncertainty of the calls from the smaller printing establishments, who buy as necessity dictates. Newsprint is also largely sold as a wrapping paper.

Other printing papers which are called for are cheap bonds for business stationery, both white and colored stock. Habana jobbers buy bonds in large quantities and an order of 10,000 reams of one size and weight is not unusual.

White is most in demand and the size is 17x22 inches, weighing 20 lb. to the ream of 500 sheets. Lighter weight paper of the same size weighing 14 to 16 lb. also sells readily. Other sizes imported are 17x28, and 19x24—24 lb. to the ream.

We have controlled the market in flat letterhead papers, and paper for business forms, blank books, etc., and our only competitor has been the Spanish manufacturers, who ship high grade handmade writing paper much used for legal documents, and a very cheap quality of paper for business forms.

Ledger papers are sold to a small extent, 14x17 inches to 16x42. Machine finished and supercalendered book papers we supply, especially the cheaper grades, sizes 25x38 inches, (40, 50, 60 and 70 lb.)), 28x42 inches (50, 60, 70, 80 and 100 lb.), and 32x44 inches (60, 70, 80, 100 and 120 lb.).

In the lithographic papers, and coated papers for labels, Germany leads. These papers are used in making the elaborate label, and insides of boxes for the tobacco trade. These are usually elaborately lithographed, sometimes in eight colors, in addition to embossing and metal leaf effects. For box labels, cigarette packages, etc., the size is usually 28x42 inches, weight 100 lb. For cigar bands, size 21x28½ inches, 40 lb. to the ream of 500 sheets.

Double coated paper is sold for printing books and magazines, sizes and weights in greatest demand being 25x28 inches (60, 70, 80 or 100 lb.); 28x42 inches (70, 80, 100 and 120 lb.); 32x44 inches (80, 100, 120 and 140 lb.).

The writing paper called for is similar in quality and colors to that sold in the United States, but there is only small demand for high class correspondence paper.

Handmade paper—principally Spanish is of two grades. It is imported in sheets 13x19 inches, deckle edged and weighs 20 lb. to the ream of 480 sheets. Second grade comes in the same size and weight, but is a cheaper quality. The importation annually amounts to about 100,000 lbs.

Cheap writing paper is also imported in packages of 20 hands, each of 10 double-ruled sheets 4¾x8 inches, 1 lb. of paper to the package. Spanish imported papeteries contain 24 sheets and 24 envelopes and retail at from 15 to 30 cents.

Some of the Habana stationery stores handle American stationery in quarter-ream packages, with envelopes to match, and larger boxes containing paper, envelopes and correspondence cards, ranging in retail price from $2 to $10.

The cheap American papeteries are growing in favor with the Cuban people and are found in most drug stores and stationers. Boxes containing 24 sheets of paper and 24 envelopes. Mourning paper is largely used by the better classes of people, much more generally than in the United States.

Writing pads have a good sale, mostly locally manufactured, containing 80 to 100 sheets, sizes 6x9 and 8x10½ inches. The government purchases about 700,000 pads annually for the public schools, all locally manufactured.

There is a large call for typewriter paper, as writing machines are in general use. 8½x11 is the size sold, cut from sheets 17x22, and weighing 16 to 20 pounds to the ream.

Many of the large banks and business firms import their letterheads, already printed, but the higher tariff of 1927 has affected the sales, and they are now being printed to a larger extent locally. Second sheets of linen, bond, manila and onion skin paper are sold by stationers and also handled by the agents of the American typewriter companies.

High grade bonds, ledgers and parchment papers are also imported from the United States for the lithographic establishments, as well as from Germany.

American types of envelopes sell well in Cuba—an unusual situation in Latin-America. Prior to the war Germany was very prominent in this branch of the business. Spaniards have, from time immemorial, used large baronial square types of envelopes, and the Germans furnished these in many grades and colors. The popular type was a thin, glazed paper with interior printing, or lithographing, to make them opaque. No. 6 baronial was sold in large quantities. The war made a change as these were unobtainable and American sizes and types came into use and still hold the market, though some of the square type are now being reintroduced by German firms. A few envelopes are also made in Cuba.

Safety paper is used—in the same way as in this country—by banks, for cheques, letters of credit, etc. It is also largely sold for the printing of lottery tickets. These tickets have 100 parts, each 4x6⅞ inches, printed in 10 sheets of 10 parts to each number, and about 270,000 pounds of paper is used annually for this purpose. It is imported in rolls 24 inches wide.

There is a small demand for cover papers for use on magazines—cheap, light weight stock, antiques, colored, sized, supercalendered and laid. Most of this is of United States origin.

Of the million dollars worth of wrapping paper, and paper sacks imported, most of it comes from the United States. Practically every grade of wrapping paper known in this country is available in Cuba, and Norway, Germany and Spain also supply this as well as ourselves. The bulk is cheap paper, but recently the quality has been improving and kraft and colored fibers are taking the place gradually of the imitation papers.

Bogus wrapping paper is in large demand also, used by small stores, butchers, etc. Sulphite manila is imported in sheets and rolls; machine-glazed paper—reddish in color; colored fiber paper in rolls, plain and glazed finish; transparent parchment and glassine paper for wrapping candy, chocolates, cakes, etc., and tissue for wrapping bread and fruit. The tissue for fruit is of the cheapest quality, and as between 400,000 to 500,000 boxes of grapefruit are shipped annually, besides 200,000 crates of tomatoes, a million crates of pineapples and other fruits, the demand for fruit wraps is an important part of the paper trade. A Japanese tissue is largely used for grapefruit, coming in bundles of 40 reams of the smaller sizes and 20 reams of the larger. It is sometimes printed, and at other times sold plain and printed by the mill, or used in its unprinted state.

Large numbers of paper sacks are used in Cuba, and it is estimated that about 250,000,000 are sold annually, about half of which are imported. These are mostly grocery bags of the cheapest variety, though some kraft and manila bags are sold. 3, 6, 12 and 25 pound sacks are those mostly in use, and of each 1,000,000 approximately half will be 6 pound, 300,000 12 pound and the balance 3 and 25 pound. These are also locally manufactured. Colored striped sacks are also imported for the better class groceries.

There is a good demand for paper boxes, most of which are manufactured in Cuba, although folding and packing boxes come from the United States and druggists and fancy boxes from Europe. Cigarette boxes—used by the millions—are manufactured by Cuban companies of various grades of paper stock—coated paper, coated card, folded card and bogus board. Some of these are manufactured complete by the lithographic companies, others printed, cut and creased and finished at the factories.

Paperboard and strawboard is imported for the manufacture of boxes. Strong, tough coated stock is needed, and there are a number of manufacturers in Habana, most of whom import their stock from the United States or Germany. Strawboard is also used by the printers and binders. Bristol board, coated enamel board, postcard stock, tag board, railway ticket board and tough check board are also imported, but only in small amounts. Cut cards—largely used by the business people—are imported in boxes in the same styles and qualities as in the United States, some coming from Germany.

Blank books we supply—some coming from Spain. The Spanish products are cheap in quality with paper sides, and with imitation or split leather backbone. Small pocket memorandum books, notebooks, stenographers notebooks, grocers' books, etc., come mostly from the United States. There is a small and growing trade for loose leaf books.

Approximately 10,000 cases of toilet paper are imported, and some is manufactured in the country. Cheap rolls of 500 sheets, five inches wide are the most popular. Package toilet paper is not sold. Paper towels are also growing in favor and are being pushed by two American companies who have their own offices in Habana.

It is impossible, in the small space at my command, to give full details in regard to these products, but the exporter who is interested in this market will do well to get in touch with the Department of Commerce in Washington, and secure its publication S.A.S. No. 132 regarding the Cuban market for paper products, which, though printed in 1917, contains much valuable data regarding the trade in other paper products, such as playing cards, books and printed matter, lithographic prints, maps, etc., blue print paper, carbon and blotting paper, flypaper, sandpaper, decorative tissue, wall paper, roofing paper, wall boards, etc. This brochure also contains particulars regarding the trade in printing machinery and supplies, presses, typesetting machines, composing room equipment, lithographic presses,

bindery equipment, binders' cloth, printing ink, printing rollers, etc.

The manufacturer who contemplates entering the Cuban market will do well to make a personal tour of inspection, to familiarize himself with existing conditions, to get in touch with firms that might handle his product, and to get some understanding of the Cuban point of view. The appointment of a personal agent, or branch office, is almost a necessity—owing to close competition in the trade, and you will also wish to consider the possibility of manufacturing your product in Cuba to circumvent the new tariff regulations.

Cuba is one of our great paper export markets; takes most of the products which we manufacture; and will well repay your most careful consideration and investigation.

Technical Advances in the Swedish Pulp Industry

Part II

IN continuation of Gösta Hall's informing account of technical advances in the Swedish pulp industry, the introductory part of which appeared in the October issue of THE PAPER INDUSTRY, we present herewith the author's observations on the drying of pulp and the charging of digesters, in each of which operations remarkable savings may be effected by the use of new mechanical devices.

Drying the Pulp

Economies in drying are among the efforts in the direction of rationalization of processes that have been particularly successful in Swedish pulp mill practice. By the use of high-pressure presses on the pulp drying machines in advance of the steam drying, the steam consumption for drying is reduced by one-third, calculated to represent an economy of more than 1,000,000 tons of steam yearly for the Swedish cellulose industry according to its present productive capacity. The high pressure squeezing is effected by passing the pulp between grooved rollers which are able, by means of strong steel springs, to exert a pressure of 40 to 60 tons. The grooves or flutings in the pressure rolls facilitate the drainage of water and so there is obtained a dry content in the pulp previous to passing under the heated drying cylinders of 50 to 55 per cent, as compared with only 40 to 45 per cent by older methods.

The application of stronger pressure to the wet pulp for the removal of water has also contributed to increased production, since steam is economized for more effective use at the dryers.

In sulphite mills the steam demands for cooking and for drying are often the decisive factors in the possibilities of bringing about increased production. Even if there was a prospect of increasing the production without considerable alterations in other parts of the mill, it could not be attained in cases where the digesters have reached the limit of maximum production. The possibility of increasing the drying capacity at the pulp dryers, as a matter of course, has brought about the desire for a corresponding increase in cooking capacity. It can be definitely stated that the capacity of a digester house

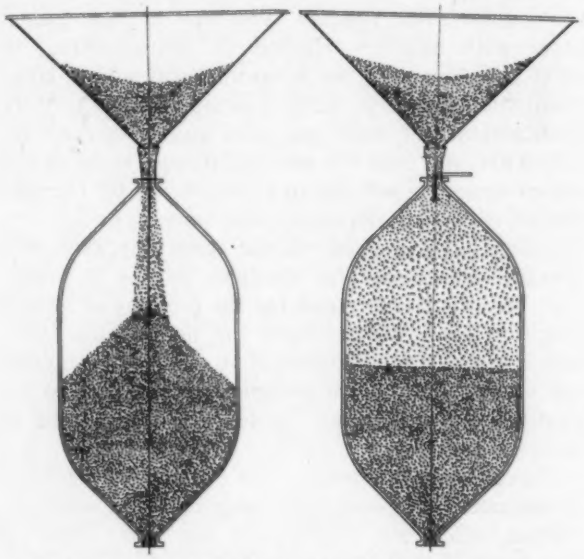


Fig. 5—Charging by gravity. Fig. 6—Charging by steam

is in direct proportion to the amount of wood placed in the digester for each cook. In order to obtain a pulp of uniform quality, the wood must always be cooked for an equal period of time and according to definite curves of temperature and pressure. The more wood that is placed in the digester at each charge, the greater will be the yield of pulp, other conditions being equal. An improved utilization of the capacity of the digester thus constitutes a means of securing the increased production aimed at.

By charging the digesters with chips from the chip bins in such a way that the chips simply slide by gravity in a steady stream through the necks of the digesters, pyramids of wood are formed in them, with most of the single chips standing on edge as shown in Fig. 5. If, however, the wood is mechanically diverted to the sides of the digester when charging, by air or steam, as shown in Fig. 6, a more level surface area is formed, the chips being deposited horizontally on top, and in this way a greater quantity of wood can be charged.

Several methods for more efficiently charging the digester with chips have been worked out by different investigators almost simultaneously, some with steam, and others with compressed air. As an instance, the systems of Svenson and of Fresk may be named. At the Korsnäs sulphite mill a system of

steam filling has been studied and applied by Chief Engineer Arnold Brobeck. By means of such methods, the capacity of digesters may be increased by as much as 10 per cent, equivalent to a corresponding increase in the amount of chips accommodated by each digester.

Lessons in Steam Plant Practice

Lesson VIII—Geology of Coal

By J. CHARLES RYDER
Champion Fibre Company, Canton, N. C.

These lessons in Steam Plant Practice are being published in THE PAPER INDUSTRY by arrangement with the Champion Fibre Company, Canton, N. C. They are a part of the general educational course conducted by this company under the direction of J. Norman Spawn, educational director.

THE word Geology is derived from two Greek words meaning "the story of the earth" and it is a long story. Geology tells us what has happened, what is happening, and what is going to happen to this world of ours.

It is but 12 hours from the heat of noon to the cool of midnight, so fast do we lose the heat sent to us by the sun, and to give you an idea of what a narrow range our thermostatic arrangement is, if there should occur a drop of 75 degrees in our annual mean temperature, all life on this earth would become extinct; the whole earth would become like the north pole. The Geologists and astronomers say that eventually the earth will get down to absolute zero, 459.6 degrees below zero on the Fahrenheit thermometer, but that is a long way off and need not worry us.

From the earliest geological times there has been a constant struggle between the land and the sea. Continents have been worn down by erosion and carried by rivers to form new sedimentary rocks at the bottom of the sea. These rocks have been in turn uplifted to form new bodies of land, and these in turn have been eroded and redeposited as rock formation. And so the process has gone on, and is continuing today. The story of the earth is uplifts and subsidences, of erosion and sedimentation.

Coal is of vegetable origin and we have reason to believe that plants from which coal was produced must have been vigorous and abundant indeed.

As stated in Encyclopedia Americana, "Plant life in the carboniferous period were like tall trees, others as small as maidenhair ferns of today.

"The most conspicuous growths in the carboniferous forests were the lycopods or club-mosses, now represented by insignificant forms, but then growing sometimes 75 feet or more high, with trunks three feet in diameter. Other lycopods had short, thick trunks with few if any branches, and horse tail rushes, were far greater importance in the carboniferous time than now.

"No plants with conspicuous flowers existed.

"The forests were probably gloomy and featureless."

A Brief Story of Coal

The principal constituent of all vegetable matter is carbon, which it gets from the air. The phosphates, nitrates and other fertilizing materials in the soil serve to stimulate growth and to give fiber and strength to the plant. We find these in the ash when the plant is burned.

The plants of the coal period were about the most abundant and varied of all extinct flora; of the 8,600 distinct fossil species of plants known, 2,000 of them belong to the carboniferous age. All coal was formed under water.

The plants grew wonderfully well in the swampy land, enjoying warm sunshine, warm water and the air heavily ladened with CO_2 (Carbon dioxide) from which the plants got their carbon. Massed about the tree trunks were fern and hundreds of other plants; beneath was a great bed of peat that had been accumulating for hundreds and perhaps thousands of years; slowly the water rose, for the land was slowly sinking. At last, the rivers overflowed the swamps and dropped their freight of silt and sand upon the inundated peat, killing and burying in their muddy deposits the vegetation that remained; the waters subsided, then the sea came back again with another load of freight, then another deposit, this time of limestone or sandstone forming material, was laid upon the shale. And so the process continued while the land subsided. At length there came a period of upheaval and the land slowly rose again to the surface while the process of sedimentation still went on. Mud, clay, and sand were at length deposited by the rivers, forming soil for a new vegetation. In time there was another subsidence and another coal vein was formed. This explains why we find clay beneath a stratum of coal, and why shale and slate is invariably found immediately above the coal.

The spongy peat deposit is compressed when rock forming sediments hundreds of feet thick are laid upon it; heat comes with pressure and the two combine to change the bed of peat into a bed of coal.

Decomposition takes place in the absence of air, the elements in the organic compound reacting upon

each other. Some of the carbon of the vegetable matter unites with some of the oxygen of the vegetable matter, forming CO_2. Some of the carbon unites with some of the hydrogen, forming marsh gas (CH_4). Some of the hydrogen unites with the oxygen, forming water (H_2O). It is probable that these processes of decomposition take place in all cases where vegetable matter is excluded from the air. If we stir up mud in a swamp, bubbles of gas come to the surface, which is found to be a mixture of CO_2 and CH_4.

Coal contains ash, foreign matter such as slate and shale, and impurities in the form of sulphur, iron and calcium. These undesirables were acquired in the course of geological events.

Ash of vegetables come from the soil in which the plant grows—and none of it was lost—but as the coal grows older, the ratio of ash to combustible matter increases. A coal is pure or impure depending upon the quantity of foreign ash it contains. It is perfect or imperfect depending upon the state of bituminization, or of its curing. Lignite, which is geologically new coal is not completely cured, while anthracite is over cured, it has lost nearly all of its volatile matter.

The swamp with its growing vegetation is the first chapter in the story of coal. The submerged peat bed is the second chapter, the other chapters are successively lignite, sub-bituminous, true bituminous, semi-anthracite, true anthracite and finally graphite.

We lost much of our coal supply by erosion. The sedimentary deposits of stone and shale covering the coal basins were worn away in places exposing the coal seams. These were in their turn quickly eroded and carried by the waters to the sea. Coal seams were brought to the surface by upheavals of the crust and where exposed these were attacked by water, air and frost. Fire has joined with water and ice to rob us of some of our coal. Exposed seams have been ignited by lightning and forest and prairie fires.

Geologists estimate the age of our earth from the crust forming period to the present time at about 80,000,000 years, and according to Sir Wm. Thompson, the carboniferous age during which time the coal measures were laid at about 12,000,000 years, a piece of coal is an ancient thing.

All coals have been produced in the same way by the same geological process. The varieties differ, due in part to the differences in vegetation from which the coal was formed, to differences in the circumstances under which the coal was formed and to differences due to lateral pressures and thrusts of the earth's crust.

The Standard Dictionary defines coal thus: "Coal is an amorphous substance derived from the vegetation of prehistoric ages, consisting of different kinds of hydro-carbons; found in beds or veins in the earth and used as fuel."

Refuse in Coal

The refuse in coal comes principally from overlying shale or it occurs in the coal itself near the shale. There are sometimes thin partings of "bone coal" near the bottom of the seam. Careless mining may result in some of the underlying fire clay which may or may not contain sand, becoming mixed with coal. The coal itself may contain certain seam bands and partings of "mother of coal" slate, pyrites, and other impurities.

We can now understand how the upper part of the original submerged peat bed became mixed with mud, which in time became shale.

When the coal merges into shale, it is called "bony coal" or "shaley coal." If the shale predominates over the coal it is called "coaly shale." When the coal of the vein proper contains over 10 per cent ash, we conclude that the vegetable matter was mixed with the mud at the time of submergence.

"Mother of coal" is a soft black substance resembling charcoal in appearance. It is often found in coal seams and usually along the planes of lamination or stratification. The woody character of the original substance is more perfectly preserved than in the coal itself.

High sulphur, silica and ash content of some of our coals are probably the result of fresh water deposits acquired by the original swamps.

Iron is often associated with coal and it is no wonder we find carbonate of iron and ironoxide in it. These are undesirable in the ash.

With this brief outline on geology of coal, we hope it might interest you enough that you will wish to make a thorough study of this interesting subject.

Our Duty to Conserve

God in all His wisdom laid these coal measures for mankind to use, and it behooves each of us to use this gift in the most economical manner we know. Our fuel supply will not grow near as fast as we are using it, and the supply in the ground will not last indefinitely. There may come a time when our grandchildren's children might be cold for want of fuel. If we are careful, our fuel supply can be stretched out to about six or seven generations, but if we go on wasting coal like we have been, it will last but five generations.

As stated in Lesson Five, coal was first used as a commercial fuel in 1840. Since then we have taken out about 18 per cent of it up to 1920, and we have got the best and the easiest. Coal will be harder to get each year as time goes by, making mining more difficult, and the price will go higher. So taking it all around, it is a duty we owe to God, man and future generations to assist in the conservation of our national resources.

All governments are interested in conserving their natural resources, especially coal, oil and timber.

This has brought about a great interest in water power developments and more efficient steam plants.

With the modern high pressure boilers and bleeder and mixed flow type turbines, the steam can be reduced to water and the water returned to the boilers as well as getting work out of every reduction of steam pressure.

When we can use a turbine or engine as a reducing valve, dropping the steam pressure successively to predetermined levels at the outlet of each turbine, getting kilowatts at each reduction, then using the final exhaust to dry pulp or paper, returning the hot condensate to the boilers, we are doing our duty toward fuel conservation and operating efficiently.

With the continued development of water power plants and improvements made in steam plants, the coal supply in the ground will last considerably longer than it otherwise would.

I remember that in 1915 if an industrial steam plant averaged 65 per cent overall efficiency it was considered good; now, with modern high pressure boilers, pulverized fuel firing and preheated air, from 85 to 88 per cent is regular operation. This means that 20 to 23 per cent more of the heat of the fuel is utilized, reducing the amount of fuel correspondingly to do the same work, or an increase of steam generation with the same amount of fuel.

Our next eight lessons will be on pulverized fuel equipment and operation. There are no examination questions with this lesson.

Cost Accounting in the Paper Industry

Part XIX (Cont'd)—An Analysis of Cost Accounting Forms

By D. A. WILCOX

THE functional side of a cost accounting system was discussed in the preceding installment. We shall now examine it from the standpoint of order costs.

Grade Costs Are Estimates—It will be noted that the grade costs are wholly estimates. In this respect they are no different from standard costs except that in the case of the standard costs there is an automatic signal—the variances—which tells at once when the estimates are out of line with current conditions, a factor which is entirely lacking in this system. There is no way of telling how far out they may be; how conditions have changed since the estimates were made, unless we have such a signal. It is only by the exercise of constant vigilance that we can make certain estimates bear any relation to actual costs, and such vigilance is a rare thing. Specific features of this method for securing grade costs and what they involve may be understood from what follows.

Queries and Answers

In order to encourage discussion on the subject of cost accounting in the paper industry, the author of this series of articles is prepared to answer to the best of his ability any queries on cost accounting that may be directed to him.

Allocation of Overhead

First, all the overhead is piled on the paper machines as is, in fact, practically everything except the direct labor and material costs of the finishing departments. No check is made subsequently between the actual and the estimates to see if the former were correct, though it is to be presumed that being based on past experiences they are not far out.

The allocation of overhead is admittedly a controversial question—whether it is best to spread it over a number of departments and then apply it to the orders by means of a series of departmental rates, or apply it all at once at some logical spot, cannot be determined with certainty. Yet it is surely true that a considerable portion of what is considered overhead in this system—notably the depreciation and fixed charges of other departments—are really direct charges and should be so considered. It is not fair to charge all papers with a portion of the depreciation and other fixed charges of the calenders, whether the paper is calendered or not. It is only when it comes to the really general expense—the office expense, the superintendent's salary and similar charges that there is any real doubt.

It is not considered that this method gives an exact enough cost as between grades, particularly when it comes to distinguishing between different types of finish; it is apt to yield erroneous findings as to differentials in costs.

Estimating Finishing Costs

The method of estimating finishing costs is nothing if not rough. In fact, it would appear that having endeavored to get the costs through the machines with some degree of precision the system passes up the remaining costs as a matter of no consequence. It is certainly true that small distinction is made as between various papers which go through the same operations, say cutting or calendering, and yet actually there may be a large difference. Size of rolls, if nothing else may make an appreciable difference in the calendering costs.

It is easy to see how the different characterisics may bring such differences about. Take the calenders. They run at a practically constant speed and their hourly operating costs are practically constant.

Let us say that it costs $2.50 an hour to operate a calender. If we have a 50-lb. paper with 50-inch rolls which is put through twice we may get, say 1,000 lb. an hour and a cost of $5 a ton. With all other factors constant, if we increase the basis weight 20 per cent to 60 lb., we should get 20 per cent more production or 1,200 lb. an hour and we get a cost of $4.16 a ton. Similarly, if we decrease the size rolls 10 per cent, to 45 inches wide, our production falls to 900 lb. an hour and our cost increases to $5.60 a ton. Suppose now we have a 60-lb. paper, 45 inches wide; run through three times, we get a production of 610 lb. an hour and a cost of $8.19 a ton. Thus, in the simple example shown we get variances in cost from $4.16 a ton to $8.19, nearly 50 per cent. Can we then say that a uniform rate for calendering is sufficient for all types of orders? What is true of the calenders is true also of all other finishing operations.

Stock Costs

When we come to stock costs we have a peculiarly perplexing problem before us. It will be recalled that the cost sheets previously described started with the air-dry weights of furnish required to make definite weights of finished paper. To go right from beater furnish to finished paper is quite a jump. In between lies loss of stock, beater yields, machine broke and finishing room broke and a multitude of other differences.

Even in setting standard costs it has been found practically impossible to predict the relation between the quantities of each pulp put into the beaters and the rough paper made for any particular grade. It may be possible to do this for a particular order if all conditions be known and taken into consideration—quite a different task in most mills—but to consider a grade, regardless of orders and do this is impossible. If there were such a thing as an absolutely closed system in which all the furnish eventually found its way into the order for which it was intended; that there was absolutely the same loss of stock on all occasions it was run, and the machine and finishing room broke of a particular grade always went back to the same identical grade it might be done, but how often is that the case? The basis weight affects the percentage loss of stock—a larger percentage being encountered on lower weights—deckle influences the amount of wet broke and side rolls, and finishing room broke affects the quantity of rodgh to be made for a given quantity of finished, and hence furnish to be used, and as broke is largely interchangeable between grades of a similar nature there is an interchange of values which is extremely difficult to follow.

Thus when we say that we can set a standard furnish and tell the quantities of each pulp required to make 1,000 lb. of finished paper of each grade, we are stretching our imaginations a little too far.

Controlling Finishing Room Broke

Incidentally, while speaking of finishing room broke, this is a matter which varies constantly and is most important to watch. It is essential to keep accurate records of the actual weights of rough and finished paper by orders and types of finish. In no other way can the causes of excessive shrinkage be located and means taken to correct them. If we keep no records of any rough weights we cannot even know if we have an excessive shrinkage and cannot start on a control, yet, it will be remembered, that was the case with the cost sheets already referred to.

It seems doubtful, therefore, if the grade costs secured by these estimates are to any great extent trustworthy. At best only a rough idea can be obtained of relative costs under such a system, and rough ideas are not sufficient in this day and generation.

Actual Costs Departmentalized

The next step in cost systems is to departmentalize the mill and record actual expenses for each department, but to apply, so far as possible, the costs to individual grades on an actual basis. There are two general ways of doing this, first by what we may call the "snowball method," and the other by means of a system of departmental rates wherein the rate is determined by the expenses of the preceding month.

The first method is really only applicable to a single product mill and is the basis of the uniform system promulgated by the News Print Service Bureau for the newsprint industry. It has been used sometimes as an expedient for securing a more accurate estimate of the total cost of sales in a multiproduct mill, but it will be seen that it gives little or no clue to the costs of individual grades. The theory is simple. The costs start in with the very first department of the mill, in the case of a newsprint mill, the wood room. The total expenses, including, of course, estimates of the fixed charges, are recorded and divided by the output of the department for the month. This then, together with the material costs —the cost of wood—becomes the debit to inventory of prepared wood. In the case of the grinders, they are then charged with the quantity of wood used at the unit price in the inventory and charged with the quantity of wood used at the unit price in the inventory and to which is added the cost of grinding. This is then debited to the inventory of groundwood. In the same manner in the sulphite mill, the chippers are charged with the wood used at the unit costs and the cost of chipping added to get the unit cost of chips, at which cost they are transferred to the sulphite mill. The actual costs of the pulp mill conversion, including the lime, sulphur, bleach and other raw materials are added and the output of the mill

divided into them to get a unit cost of sulphite pulp.

The paper machines are charged with the groundwood and sulphite pulp at their actual costs, determined as described, and the conversion of the machines added, allowance being made for shrinkages and losses. This gives the cost of the output of the machines and the unit costs. Similarly the costs of finishing are added until the total cost is obtained. It thus starts at the beginning and is followed through, building up like the proverbial snowball rolled along the ground.

This system is described in detail, together with a number of valuable points in connection with its operation in a bulletin published by the News Print Service Bureau and is available to all who desire a copy. It will not, therefore, be necessary to elaborate on it further in this series. Before passing, however, it is important to mention that this bulletin takes note of the fact that there may be a distinction between the total cost of doing business and the cost of the product if the mill be down, and recommends that under such conditions the expenses of the departments be charged off to a separate account termed "cost of idle time."

Rates Based on Actual Costs

In the second system the mill is divided into different departments, usually as many as there are separate and distinct operations, and careful records are kept of the expenses incurred in each center each month, including, of course, allowances for the fixed charges. At the same time a record is kept of the operating time, or other units of operation; the time when divided into the expenses, gives a rate per hour which is charged against orders run the following month. Thus, if it cost $10,000 to operate a paper machine in May and it ran 500 hours there would be developed a rate of $20 an hour, and all paper run in June would be charged $20 an hour for running it.

General overhead is usually spread over the various departments on some arbitrary basis which seems fair.

Stock costs are based on formulas, using definite losses of stock to build up the costs of rough papers of the various grades, careful records being kept of the actual shrinkages in the finishing room to determine the costs of finished paper.

This system involves departmentalizing the mill and recording actual expenses for each department, recording operating time for each order and calculating the costs of such orders on the basis of the previous month's experience. To the extent that the mill is departmentalized and actual costs recorded, this method represents a distinct improvement over the first method. It permits of securing a better control of expenses; of locating and placing responsibilities and of forming the basis of a standard cost system when that becomes desirable.

The method of calculating grade costs is not sound. The fact that the costs per hour were so much last month, when they might have been making very different types of papers, is no reason for charging orders run this month at those rates. It cannot give fair distinctions to the peculiarities of the grades themselves, as there are too many extraneous matters involved.

Storage and Handling of High Density Stock

By MERTON S. FOGERTY
Groveton Paper Company, Groveton, N. H.

IT has long been desirable in the paper industry to store and handle high density stock so as to permit the storage of much larger quantities ahead of the paper mill in a form convenient for easy and inexpensive handling. The objections have been principally the large amount of power necessary to properly agitate the thick stock and the inaccuracy of accounting which has always been an evil of any slush system. Even with large expenditures of power, whether by vertical or horizontal arm agitators or by compressed air, it has been difficult to equally agitate all parts of the stock in chests especially designed to reduce this difficulty to a minimum. Where a pulp mill is connected with a paper mill but it is desired to equitably place cost responsibility between the two departments, there is bound to be uncertainty as to the amount of pulp delivered by the pulp mill to the paper mill where there is no possibility of weighing direct, the case with slushed pulp.

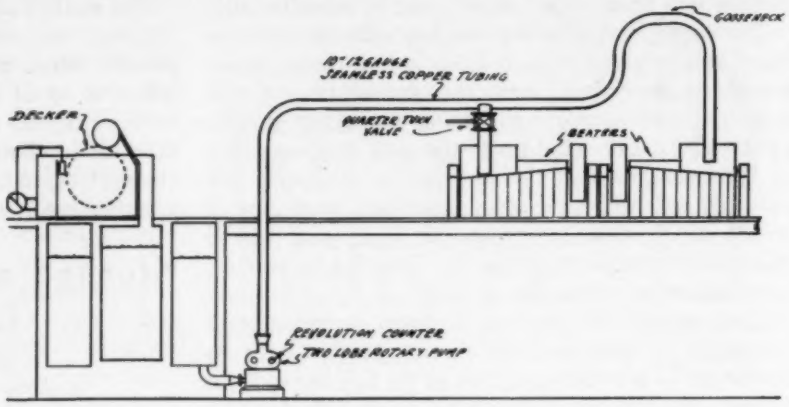
By the construction of a horizontal three compartment tank with a double screw propeller on one end similar to the familiar Bellmer bleacher, it is readily possible to store and thoroughly agitate as much as 15 tons of six per cent dry stock. The depth of this tank should not exceed 12 feet and should be so proportioned that the center compartment is 40 per cent wider than each of the two side compartments. The bottom of the tank should slope about three inches in every 10 feet from a high point 10 feet from the propeller end of the center compartment, following down the center and around the ends of the division walls to low points in the side compartments at the entrances to the propeller itself. The tank sides and bottom should be lined with a cement hardener or better still, although much more expensive, glazed white tile which will average in cost about $1.10 per square foot in place. The power required for this agitation is two hp. per ton of stock and when direct connected through any of the many types of reduction gears the installation makes a very compact and attractive whole, motor, gear and propeller.

The effect of this type of agitation is to impart

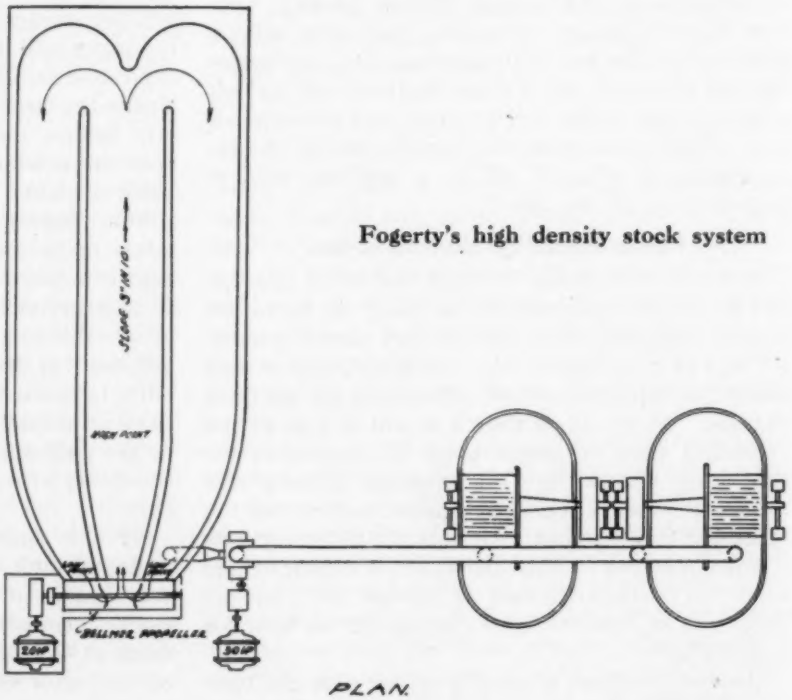
some hydration to the stock with a resultant 10 per cent increase in strength. With only limited experience, the operator of the deckers discharging to this tank can maintain the consistency within a narrow range.

The draw-off from this tank should be through a pipe elbow leading from the bottom of one of the low points in the tank and, if possible, should have a drop of two feet and a short connection to a two lobe rotary stock pump. This pump is readily adaptable to a direct connected motor and reduction gear and can be fitted with remote control in the beater room. This arrangement is ideal.

The discharge from this pump should be of 10 inch—12 gauge seamless drawn copper tubing having its ends rolled over thin cast iron flanges. The line should run over the beaters to be served, there being a down connection through a quarter turn plug valve at each beater before the last, the discharge being preferably directly in front of the beater roll. At the last beater there should be a vertical gooseneck with no valve. This last arrangement is a precaution made necessary by the fact that the above mentioned pump is positive and to run it against a closed pipe line by mistake would cause the bursting of the pipe. With a maximum lift of twenty feet and a pipe line not over 100 feet long, 30 horsepower will drive the pump and fill a 2,000 pound beater in from three to five minutes. The latter figure is preferable as allowing a closer control of the quantity pumped.



SECTION IN ELEVATION.



PLAN.

Fogerty's high density stock system

No thickening is thus necessary by the addition of laps or sheets or by running an octagonal washer. Beating can be begun at once, closer regulation of the hydration of the stock controlled and beater production can be increased with a smaller consumption of power per ton. There is no jumping of beater rolls as is the case with laps.

By putting a revolution counter on the pump and making a careful calibration by trial, the amount of stock delivered by the pulp mill to the paper mill for any cost period may be quite accurately determined, the discharge per revolution being constant no matter what the suction or discharge heads are. The only assumption necessary is the consistency of the stock. A short experience with this system will enable the pulp mill operator to maintain a close consistency, especially if he knows that the laboratory is making random tests of the consistency delivered to the beaters.

There is thus described an eminently satisfactory system of storing and handling high density stock, the system having the advantages of simplicity, low power consumption, reasonable cost, complete agitation, very low maintenance, an increase in beater capacity, a reduction of beater roll maintenance and a system admitting of close cost control not usually possible with a slush system.

Current Thought by William Sibley

At Maturity

ONE of the outstanding characteristics of Calvin Coolidge is his ability to keep himself completely divorced from such controversial subjects as morality, religion, etc. His long political experience taught him the dangers and the pitfalls which lie concealed under such thin ground, with the result that not only during but before and after his presidential administration, his public statements were singularly free of anything which might give rise to acrimonious discussion. Like all other public men who have accumulated wisdom from their experiences, he has clung to self-evident truths; finding his greatest solace in proved maxims. Further evidence, not only of his skill in avoiding controversy, but also of the vastness of his wisdom and discernment, is found in a recent speech of his where he made the statement that "we are expecting too much from free government,"—and continued with: "We demand entire freedom of action and then expect government in some miraculous way to save us from the consequences of our own acts."

Could anything be more true? As W. G. Sibley in the **Chicago Journal of Commerce** (who, by the way, is in no wise related to the writer) said: "That opens the sore to the bone, and the sore is the result of the political education the people have been getting . . . . "

Mr. Coolidge continued to say, in his recent talk: "We want the right to run our own business, fix our own wages and prices, and spend our own money, but if depression or unemployment result we look to government for a remedy." How closely that thought approximates my own statement in the May issue of THE PAPER INDUSTRY, where writing under the title of "Getting Back to Fundamentals" I said: "Business, with a capital "B," turned eagerly to Washington for help when (after the stock market crash) its executives and office boys alike found it as easy to get poor quick as it was to get rich quick."

Calvin Coolidge, applying an economical yardstick to this tendency hit another monstrous economic fallacy when he said: "we insist on producing a farm surplus, but think the Government should find a profitable way to market it." Assistance to agriculture has been attempted by the Government, with miserable failure. We will doubtless continue such attempts on the part of government, with equally miserable failure but with increasingly huge costs. And all because simple economic laws refuse to be stampeded by a transient farm board.

As a conclusion to the whole matter, Mr. Coolidge offers this thought: "The only way to hold government entirely responsible for conditions is to give up our liberty for a dictatorship. If we continue the more reasonable practice of managing our own affairs we must bear the burdens of our own mistakes. A free people cannot shift their responsibility for them to the Government. Self-government means self-reliance."

All of which brings to mind the editorial I wrote some four years ago about how we were tending to squander our priceless governmental heritage. If, as Mr. Coolidge says, we are losing sight of the basic fact that self-government means self-reliance then we are merely proving again our standard insurance company percentages and emulating those who squander both interest and principal of their trust funds.

With the rapid growth of the insurance business there has developed much important data regarding all phases of industrial and social life. Not the least important of these data is the single fact that more than 90 per cent of all policyholders or insurance beneficiaries squander their endowment, or the policy's face value, almost as soon as it had been paid. Because of the searching records on this point we know that only one out of every ten insurance beneficiaries retains the value of his cash longer than four years. In other words, in 90 per cent of all cases, the savings of 20 to 30 years are

lost in four years. The reasons assigned for this quite awful fact are: inexperience, lack of training, false education, and failure to consider the future.

About 150 years ago a few thousand people, young on this continent, became wedded to Liberty. Immediately they began rearing children, and these they named: Opportunity, Equality, Justice and Happiness. Having imposed upon themselves the responsibility of such a family they took out an insurance policy. This policy was the Constitution, and like all insurance policies it was designed primarily to care for the children.

Akin to the majority of insurance policyholders, these people of 150 years ago were rich in determination but poor in material wealth. To make the payments and to keep their constitutional policy in force, they had to meet, at great sacrifice, such premiums as the War of 1812, the Indian Wars, the Civil War, and other payments equally exacting and hard to meet. But, being rich in determination, they met the payments and kept the policy in force.

It is this constitutional policy that is just now maturing. We, being the beneficiaries, are now permitted to realize the full value of that policy. Like most beneficiaries, however, we cannot appreciate the hardships or sacrifices that accompanied the payment of the premiums; and, considering the trend, it is not at all likely that we consider the future. Indeed, is it not becoming more and more evident that we are a part of the 90 per cent rather than those exceptional ones making up the 10 per cent? Is it not becoming increasingly apparent that we are rapidly squandering our priceless heritage?

The cash benefits of our 150-year-old constitutional policy have brought prosperity in a higher degree than was ever visited upon any other nation or people in all history. Having this prosperity, we have grown apathetic of the cause of it. We are paying more attention to the spending of the result than to the protection of the principal. Indeed, our constitutional insurance policy having done so much for us, we are wont to think of it as being all-powerful, and as Mr. Coolidge states, attempt forcing it to care for the impossible, such as farm relief, social reforms, or unemployment.

It has always been a noticeable fact that opulence and prosperity more often bring discontent than does adversity or imposed sacrifice. This phenomenon is present in every walk of life. Those possessed of all material things needed to bring comfort, ease and convenience are frequently not so happy as the poorer individual who has little of the world's goods. It is so with nations. The United States is the most prosperous nation on the globe and is enjoying a degree of freedom and opportunity that can be had only by means of a republican government. Yet the political theorists and unsound economists are constantly endeavoring to exchange our governmental structure for a slum-gullion stew, and this sort of activity makes our stomachs ache and our purses thinner. The folks who struggled to keep their constitutional policy in force for the benefit of posterity had precious little time to listen to schemes which would popularize the primaries, the initiative and the referendum, or old-age pensions. Their golf-clubs were double-edged axes and their yachts were flat-bottomed scows freighted only with the necessities of life. The men and women who trekked across the prairies in covered wagons (and some which had no cover) were concerned not at all with the "labor exploiting capitalist." They were interested, rather, in the setting up of national and state governments which would perpetuate, for all time and all children, the degree of opportunity and freedom they so thoroughly enjoyed. To-day the governments at Bismarck, Pierre, Lincoln and Des Moines are such as would almost be unrecognizable to John Jay, Hamilton, Franklin or Monroe.

As a nation, we recognize the fact that any program, political policy or agitation, which tends to interrupt or discourage sound government and safe business conditions will at the same time and in greater degree destroy our prosperity and snap away our savings just as surely as will unsound investments or profligate living. But what are we doing, as a nation, beyond recognizing that fact? To stand and view a dirty floor will not make it clean. On every single one of us rests the responsibility for maintaining the prosperity that exists. There is no one to whom we can pass the buck. Jones won't pay the freight. We cannot indulge in visionary political experiments with any greater profit than we can invest in wildcat stock. We have all the data necessary to point the way. Ninety per cent of all beneficiaries squander their heritage. Ten per cent save and prosper. Thousands upon thousands of beneficiaries are tricked by smooth-tongued, flannel-mouthed stock salesmen—then take in washing to keep soul and body together. The few who refuse to listen to the high pressure promises of the swindler retain their money—and live in peace and comfort.

We have the cash value of our heritage in our pockets. Now it is up to you and me—and all of us. Ninety per cent—or ten per cent—?

You

You are the fellow that has to decide
Whether you'll do it or toss it aside.
You are the fellow who makes up your mind
Whether you'll lead or will linger behind.
Whether you'll try for the goal that's afar
Or be counted to stay where you are.
Take it or leave it, here's something to do.
Just think it over, it's all up to you!

—Forbes.

Chromium Plating in the Paper Industry

By D. H. BISSELL
Chromium Corporation of America

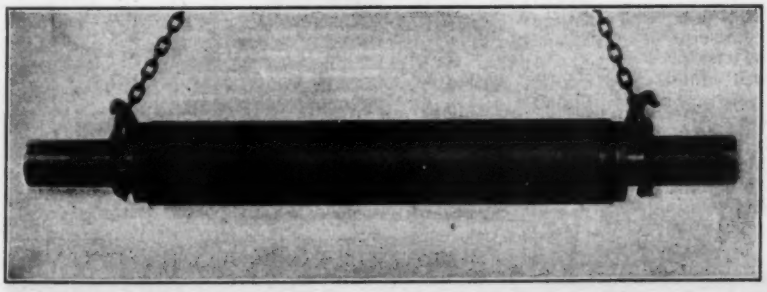
ALTHOUGH the use of chromium plate as a decorative finish is now fairly well-known, its various applications to practically all base metals as a resistant to wear and corrosion are considerably less familiar. These are, nevertheless, enormously more important and should be of intense interest to pulp and paper manufacturers, in which industry much valuable experience has already been gained during the past few years, prior to which commercially successful applications were unknown.

Because it is the hardest metal in ordinary use, metallic chromium had previously been used mostly as an alloy in the manufacture of special steels. It is approximately twice as hard as ordinary steel and about nine-tenths as hard as the diamond, which characteristic makes the plate so efficient as a wear-resistant. Its coefficient of expansion is very low and its melting point very high, thus rendering it impervious to anything but extreme heat conditions. Its coefficient of friction is unusually low and there is little tendency for materials to adhere to its smooth surface. It is not affected by either organic acids or alkalis though susceptible to the action of hydrochloric acid and, to a lesser degree, sulphuric acid.

Chromium plating solutions are composed principally of chromic acid, produced from chrome iron ore or chromite and about the same methods of plating are in use as for electroplating nickel and copper, although the electrodeposition of chromium is probably the most complicated and exacting process of any. The pieces to be plated are thoroughly cleaned and if necessary plated with nickel or copper or both before being chromium plated. The thickness and nature of the chromium deposit depends upon the purpose of the application and varies according to the current density and the length of time in solution. For decorative finishes the piece is ordinarily given a chromium "flash" which obviously has no appreciable value as a protection against wear, although to some extent it does resist ordinary wear and corrosion. For industrial purposes a really effective corrosion-resisting

Chromium-plated bronze roll in operation in a Massachusetts mill

plate should be slightly heavier and a similar plate is required if prevention of wear is the main consideration, under which circumstances the life of the unplated piece is ordinarily increased not less than three times and in some instances more than 50 times.

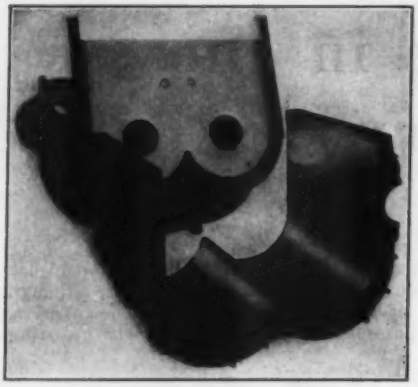


Chromium-plated embossing roll used on heavy runs

Wall paper printing roll, chromium-plated

Many interesting and highly successful applications of chromium plate have been made on equipment used in paper manufacturing. Rolls of various kinds and sizes have offered the most outstanding examples of the effectiveness of chromium plate. Whether the roll is of copper, brass, bronze, steel or chilled iron, its life—especially in the case of calender, embossing and printing rolls—is usually increased not less than three times and in many instances considerably more by the application of an extremely thin chromium plate to the surface. The prime advantage is increased hardness but at the same time corrosion is greatly retarded and the pitting of rolls, whether in service or in storage, is prevented. The smoothness of chromium on brass or steel tube rolls prevents adherence of the material and decreases the wear of the wire. Couch rolls, press rolls, breast rolls, drying rolls, friction and finishing calender rolls, embossing rolls, creping rolls and wallpaper rolls have not only shown decidedly longer wear after having been chromium plated but have at the same time produced a better finish than could otherwise be obtained. This, incidentally, is permanent during the life of the chromium plate and is an advantage not obtainable from steel rolls.

Particularly where very long runs are made with one design, various kinds of engraved rolls are chromium plated with exceptional success. It has been found that



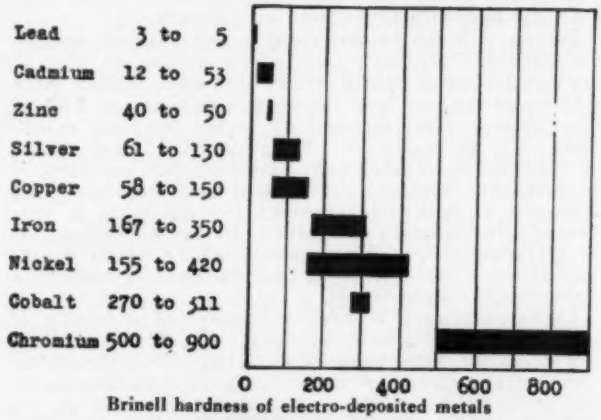
150-gallon mixer and paddles, used in treatment of plastic materials, chromium-plated to resist wear, corrosion and to eliminate adhesion of materials to the machine

the application of a thin film on finely engraved rolls does not damage the design in any way, but on the contrary appears to accentuate it so that the impressions appear to be clearer and sharper than those obtainable from unplated rolls. In addition to obtaining many times normal production from these plated rolls it is frequently the practice to strip and replace the roll when the design has begun to wear, thereby reducing operating costs through avoiding the necessity of reengraving and also by saving time in removing the roll from the machine, handling and replacing more frequently. In the case of creping rolls, sticking of the paper is prevented and a better finish is produced. The use of a special hardening process for lace paper rolls is usually unnecessary if these rolls are chromium plated, in which case a longer life than is possible from the steel, a brighter finish and a clearer cut design is obtained. Heat treating of steel rolls is rendered unnecessary and difficulties with distortion may be avoided by chromium plating.

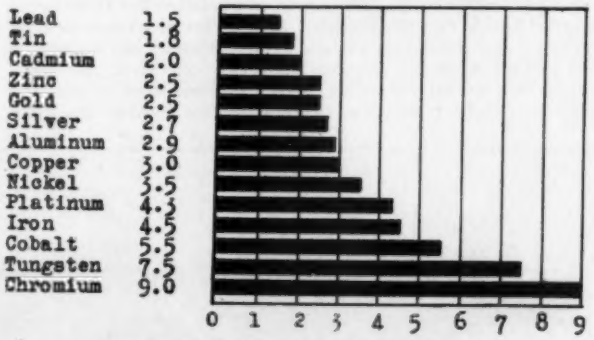
Suction box covers, guide bars, evaporator tubes, knives, flat and curved screen plates with cuts or holes, and pump parts are, among numerous other items of equipment, practical applications for chromium plate. Suction box covers and guide bars are smoother, last longer, stay clearer and substantially increase the life of wires. Chromium plating of evaporator tubes prevents contamination of solutions. Screen plates wear longer and the openings remain sharp and clear. Friction of pump parts is decreased and material in solution has less tendency to adhere.

The most convincing arguments in favor of the process are the performance records of chromium plated equipment. A steel engraved embossing roll was kept in operation for 15 months compared with four months before being plated. Another chromium plated embossing roll ran 18,000 reams compared with the life of the unplated roll which was about 3,000 reams. It is interesting to note that no difference was apparent between samples run after 15,000 and those after 5,000 reams. Seamless steel evaporator tubing exposed to caustic and sulphite solutions was chromium plated and after being in use for nearly four years is still in operation. In this instance the cost of the tubing and the chromium plating amounted to only about one-half the cost of stainless steel tubing. Unplated copper printing rolls which produced 50,000 pounds of paper, produced 300,000 pounds after being chromium plated. Another embossing roll which ran approximately 6,000 reams before being plated produced 12,000 reams and showed absolutely no effects from manufacturing operations. Chromium plated plug gauges were used on 20,000 holes in aluminum and bronze castings where the unplated gauges could do no better than 2,000 holes. Plate gauges have given 218 hours in certain grinding operations where formerly four was the limit. Another plug gauge was used on 18,000 holes compared to 1,300 holes obtainable before plating.

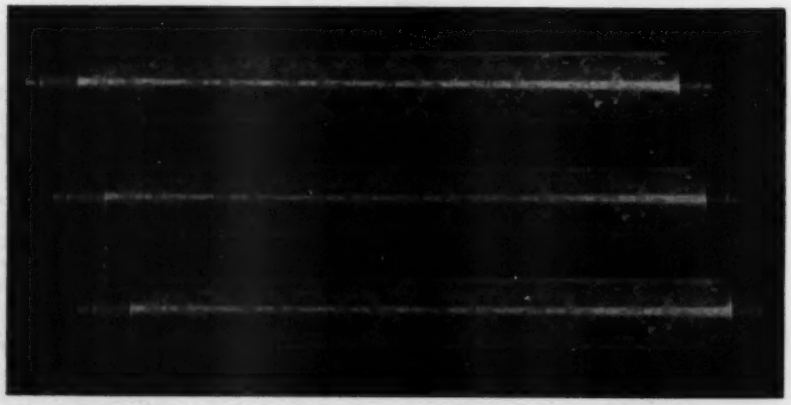
Due to the large and heavy rolls and other equipment used in the paper industry and the extreme importance of careful technical supervision and study of each particular plating problem, few commercial plating companies are adequately equipped to render satisfactory industrial chromium plating service. Some, however, have made a specialty of industrial applications,


Lead 3 to 5
Cadmium 12 to 53
Zinc 40 to 50
Silver 61 to 130
Copper 58 to 150
Iron 167 to 350
Nickel 155 to 420
Cobalt 270 to 511
Chromium 500 to 900
0 200 400 600 800

Brinell hardness of electro-deposited metals



Comparative hardness of metals (Moh's scale)



Chromium-plated printing rolls produce finer reproductions and avoid costly re-engraving

Suction box cover, chromium-plated

particularly in the paper field, and are consequently equipped to not only make available suitable mechanical facilities for plating, but also technical training and practical experience. It is these elements which control to a large extent the degree of success of specific applications. It is a known fact that the hardness and abrasive resistance of electrodeposited metals, more especially electrodeposited chromium, varies considerably but if the fullest advantage is taken of the methods and processes now available, this may be favorably regulated so that the finished grade is within well-defined limits.

The numerous successful commercial applications of chromium plate indicate a gradually increasing realization of its immense potential worth to industry. In the final analysis the true value is measured by operating efficiency rather than theory and consequently it is the actual production records which are largely responsible for the more universal knowledge and acceptance of the process.

Recent Developments in Screens

It sometimes seems that progress in any given industry, or in industry as a whole, is slow. Then something happens. There is a burst forward and almost overnight far-reaching advances will be made.

For centuries men dreamed of flying. Finally the Wrights at Kitty Hawk remained aloft for a few minutes. Recently we had the spectacle at St. Louis of two men remaining aloft for more than twenty-seven days.

For years the only machine used in the screening of pulp was the diaphragm flat screen. The centrifugal screen appeared over 30 years ago, and within a few years after its introduction there were many designs and types. This type of screen soon replaced flat screens for screening groundwood and sulphite pulps of newsprint grade. Up to the present time, however, flat screens still reign supreme where cleanest pulp is required. While centrifugal screens used more power per ton than flat screens, their greatly increased capacity per foot of floor space, lower first cost per ton, reduced upkeep expense, quieter operation, etc., more than offset the added power consumed and created their acceptance as standard equipment. Some of the screens of this type which first appeared on the market soon dropped out and left the market to only a few principal designs. These designs included both horizontal and vertical units. The horse power consumed by these machines was roughly from one to one and one-half horsepower per ton.

Two new screens of different design have appeared on the market within the past two years. In earlier screens both the screened stock and tailings were discharged by gravity at points near the screen base, and additional power was required for pumping. In the new designs of screen as well as some others the screened stock and tailings are delivered at higher elevations. Although one horsepower per ton was considered exceptional performance for some of the older screens, the manufacturer of one of the new screens states that power readings of ½ to ¾ horsepower per ton are now being guaranteed for screens with .065-inch perforations when operating on groundwood and sulphite stocks at 0.4 per cent to 0.5 per cent consistency. Tailing rejects were said to be as low as 5 per cent to 7 per cent, and 15 per cent was given as a high figure.

The more recent designs of screens are not only smaller in size than the older machines, but are of simplified construction. The claim is made for one of the machines that not a bolt, nut or rivet is to be found in the rotating element. Another novel feature in this design of machine is freedom from close appearances between plates and rotor. The screening of pulps, especially soda and kraft, at higher consistencies than has been customary with the older types of units is also an advance in the art of screening.

Information presented by one screen manufacturer included data on several screen installations. One unit on mill test on soda pulp handled 135 tons per day through .055-inch perforations at 1¾ per cent consistency and used less than ¼ hp. per ton. In another soda mill one unit has handled 120 tons of bleached pulp per day, the entire production of the mill, at consistencies up to 2½ per cent air-dry through .055-inch perforations. Kraft pulp, using 0.100-inch perforations in the screen, has been screened at consistencies of over 1.8 per cent air-dry with an output at the rate of 150 tons per day and four tons per hp.

The indirect results from screening at higher consistencies are even more pronounced than the apparent power saving in the operation of such screens. When it is considered that a mill handling stock at 0.5 per cent must pump, thicken, and screen 200 tons of liquid per ton of dry pulp and that thickening this stock to 4 per cent requires the removal of 175 tons of white water per ton, it should be noted that if this same stock is screened at 1½ per cent it means the pumping, etc. of only 67 tons of liquid per ton and the removal by the thickeners of only 42 tons of white water per ton of pulp to bring the stock to the same 4 per cent.

Groundwood and sulphite pulps have not been handled at as high densities as soda and kraft pulps. In fact, it would be difficult to secure groundwood at 1½ per cent density to supply the screens, since the pulp must be sluiced through the grinder ditches and passed over the bull-screen. This operation could not be performed readily at densities greater than 0.9 per cent to 1 per cent. Screening at this density, however, would reduce the deckering equipment required for a given tonnage, and savings in power for pumping, first cost of pumps, piping, and thickeners would also result.

Other advantages claimed for screening at high density are fewer slivers and less dirt in the pulp, and, in the case of groundwood, less pulp in the white water.

Recording Color Analyzer Is Placed on Market

The General Electric recording color analyzer, announced sometime ago as a laboratory development, has now been placed on the market. The device has been made much more compact and sturdy than the laboratory instrument, without loss of speed or accuracy.

The analyzer, a photoelectric device, automatically draws for permanent record the color curve of a sample in the visible spectrum. It is so constructed that either solid substances or transparent materials can be analyzed. It is a laboratory instrument, best used for the accurate control of the basic materials entering into the manufacture of colored products.

Federal-American Cement Tile Co.

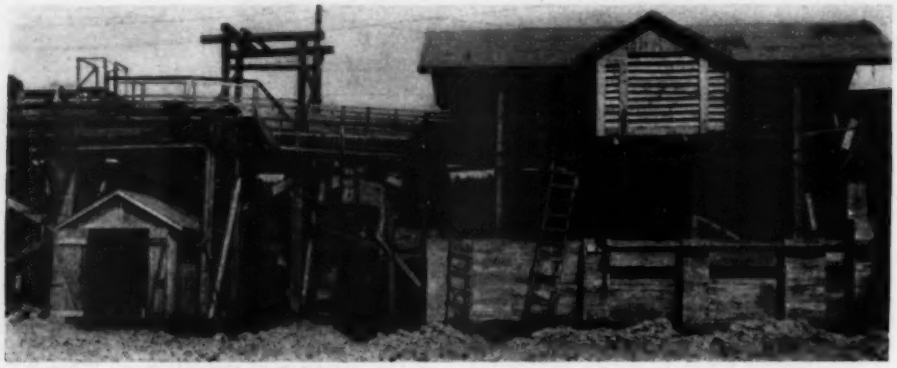
Federal Cement Tile Company, of Chicago, announces that it has acquired the American Cement Tile Manufacturing Company.

Executive and general offices will be at Chicago, with additional sales offices in New York, Philadelphia, Pittsburgh, Detroit, Boston, Buffalo, Birmingham and other cities. It is proposed to name the company the Federal-American Cement Tile Company.

E. J. Pope Goes with Horne & Sons

E. J. Pope, inventor of many machines successfully used in the paper industry, has become associated with J. H. Horne & Sons Co., of Lawrence, Mass.

Mr. Pope will be in charge of the production of Pope machines which will be manufactured and marketed by the Horne Company. Among these are the Pope conservator, brushing engine, universal flat screen and champion rotary screen.



Installation of bark disposal system at A.P.W. Pulp & Power Co., Sheet Harbour, N. S., showing sluice from barking drums to first pump house

Handling Bark Refuse

Unique Disposal Method Operating at Groundwood Mill in Nova Scotia

THE proper and economical disposal of bark refuse in a wood pulp mill is recognized as a problem that must be solved in accordance with conditions existing in that particular mill.

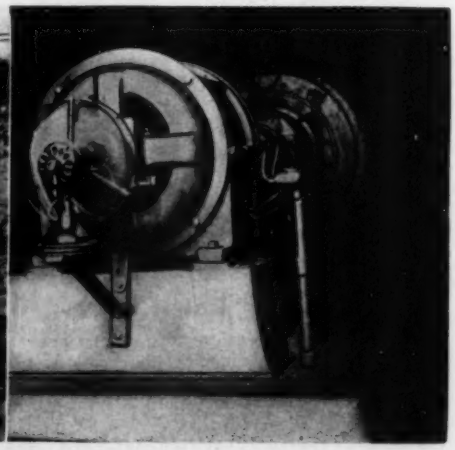
The A.P.W. Pulp & Power Co., Ltd., Sheet Harbour, N. S., Canada, is a groundwood pulp mill situated in a vicinity that has very little level land, and at the extreme head of a narrow harbor, seven miles from the ocean. All shipments are of necessity made by water and it is important that as great a depth as possible be maintained, in order that ships of considerable tonnage can be docked at the wharf.

The matter of bark disposal from two barking drums in the mill was carefully studied. The necessity of keeping material out of the harbor, as well as the regulations of the department of Marine & Fisheries, made it impossible to consider flowing the bark into tidewater.

Sawmills have operated at or near the site of the A.P.W. mill for the past 75 years. Therefore, much of the area in the immediate vicinity is made up of sawdust and slab fill, and because of this, the fire danger is so great it was considered impractical to attempt burning the bark at any reasonable distance from the barking drums. In addition to this, because of the fact there is always a fine sediment left in the water after extracting the bark, the latter was deemed impossible as the sediment would find

Second pump house midway on pipe line and thrust tower

Wooden stave pipe line across West River

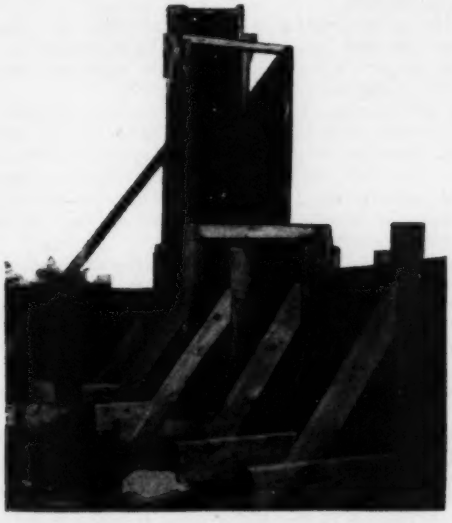


Interior of first pump house

its way into the harbor and eventually amass considerable bulk which would have to be dredged out to keep the harbor at the proper depth.

The first thought was to run the bark on dump-scows which could be towed to sea and disposed of there, but further study made it certain this method would be costly, quite uncertain owing to the foggy weather prevalent in that region, and perhaps subject to complaints from fishermen if it were carried out.

It happened that a lake of quite some size lay over a low hill about 3,000 feet away from the mill. This offered an excellent basin for the bark if there was any practical way of getting it there. Bucket conveyors for elevating into a sluice were considered but the upkeep cost was discouraging.



Start of sluice, showing method of varying head by removable dam if required

Open sluice which has a drop of four inches per hundred feet

It was felt that a single port impeller pump would handle the material if such a pump could be found. Several pump manufacturers were communicated with, none of whom made this type but among them was one who felt certain that a two port impeller pump manufactured by him, would do the work. This proved unsuccessful because one end of a piece of bark would often start out one port while the other end started out the second port, with the result that the bark would hang up and clog the passage.

A single port impeller pump was found to be manufactured by the American Well Works, Aurora, Illinois, and this firm was ordered to make two ten-inch, single blade, non-clogging pumps of the horizontal type. Each was designed for a capacity of 1,500 U.S. g.p.m. of water against a total dynamic head of 50 feet, running at 965 r.p.m. and each driven by a 50 hp. motor. These pumps handle the bark coming from the barking drums in the mill, the first pump lifting it to an elevation practically equivalent to its total head, and the second pump taking the bark and pumping it to a higher elevation. In other words, the pumps are operating in series.

Mr. Frederick A. Gaylord, vice-president and general manager of the A.P.W. Pulp & Power Co., Ltd., advises that these pumps have operated continuously for the past two years, except during freezing weather, and no trouble has been encountered except what would be expected in the nature of bearing repairs, etc. The amount of water handled is about 2,400 g.p.m. The bark content of the water is from a maximum of 20 cords per hour. The discharge from the pump is handled through a ten-inch diameter Douglas fir stave pipe, about 1,000 feet in length, and the static head encountered is 60 feet with a friction head of 20 feet, making a total of about 80 feet.

Each pump is equipped with a float arrangement to cut out the power when water fails. Also when the power is

End of pipe line and start of sluice

End of open sluice, showing collection of bark in lake

cut off, an automatic trip keeps the pump from running backwards; and if one pump stops, the other is automatically stopped.

If the bark comes in large pieces, it is liable to sink and pile up before reaching the pump unless the current is very strong. This is the only time when any attention aside from oiling is required. This labor, if needed, plus the cost of power, depreciation and very small upkeep, is the entire cost of operation and the pumps have never clogged. The pipe discharges into open sluices to be carried away 2,100 feet, with a drop of four inches per 100 feet to the lake.

Although the bark is dumped into the lake about a quarter of a mile from the outlet, the water of the outlet is as clear as before and shows no indication of this material. The end of the sluice is some eight feet above the water and fairly close to the shore, and it has not been necessary to continue this sluice-way as yet and probably will not be for sometime to come, as the bark spreads out of itself to cover a very large area.

Obtaining Efficiency by Careful Selection of Recording Instruments

By W. O. HEBLER

Secretary, Charles Engelhard, Inc.

IT is obvious that proper control of processes cannot be obtained in the sulphite pulp and paper industry by haphazard selection of control equipment. Yet, very often when one finds that a plant chemist and control engineer feel that the plant is being run at maximum efficiency, there is a considerable waste of raw materials because of the lack of a true record of the process. At times their judgment may be correct, but in most instances the application of suitable instruments properly developed for individual problems reveals that losses are apparent in many phases of the production.

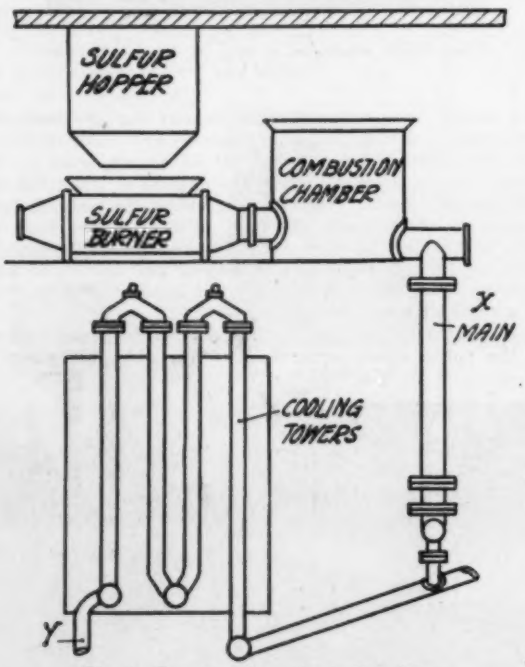


Fig. 1—Correct points of sampling SO_2

One outstanding example is the contention that tests for sulphur dioxide by the Reich test in one hour intervals gives all the information necessary for proper control of the burner. Yet seldom is it known that extreme fluctuations take place during these one hour test intervals. Sublimation increases the oxygen content, choking the burners and other conditions may tend to either lower or increase the SO_2 content as emitted from the burners.

What does a chart having a twenty-four hour record of SO_2 gas percentage reveal? One of the first points of information is the difference in operation between day and night shifts. Efficiency of the operators can be checked by merely a glance at the continuous record. It is definitely known that the SO_2 concentration if carried beyond 18.5 per cent to 18 per cent causes sublimation. By intermittent Orsat checking this condition cannot be counteracted. A recording instrument which is sensitive to minute variation of gases will detect this tendency of gas in an upward direction. It immediately posts the operator to cut down on the burner strength in order that the predetermined percentage of SO_2 can be maintained.

Aside from sublimation which we all know requires considerable time and loss of sulphur, the variation of SO_2 in any great amount will show a great loss because of increased sulphur consumption.

There are several types of instruments available with which to obtain this information. The one most generally employed, however, is the electrically operated thermal conductivity type instrument. After several years of operation many plants have found that this type instrument because of the information it gives pays for itself during the first six months of operation.

Its operation is based on the principle of unbalancing a Wheatstone Bridge by means of different heat conductivities of one gas as compared with a standard gas. We will assume that air has a thermal conductivity of 1.00. SO_2 has a thermal conductivity of .415. By surrounding two electrically heated wires, which in turn are mounted in a copper block and connected into the Wheatstone Bridge circuit by air, the heat from these wires is dissipated into the copper block at an equal rate. The pointer on the instrument because of this balanced condition will show on the zero point of the scale. Let us replace the air surrounding one of the wires by SO_2 and the heat conductivity differences results in the unbalancing of the Wheatstone Bridge circuit dependent on the volume of the SO_2. The pointer is reflected proportionately.

A recording thermal conductivity analyzer which is used in the sulphite pulp and paper industry is generally calibrated from zero to 20 per cent. It can be located at any point remote from the combustion chamber. The anaylsis cell having its wires protected with fused crystal quartz is located as close to the point of sampling as possible.

Figure 1 indicates the most satisfactory point (y) at which samples should be abstracted. A continuous flow of gas is passed through the analyzer at the rate approximately 500 cc per minute.

The most satisfactory type of sampling tube is made of quartz. This material is not susceptible to corrosion or thermal shock.

There seems to be some divided opinion as to whether the samples when taken from the combustion chamber give more satisfactory operating results than when obtained from the exit. Experience, however, has proved that instantaneous analysis of SO_2 as it leaves the combustion chamber enables the operator to keep his concentration in order. Examination of approximately one hundred charts from various plants has indicated that the average SO_2 volume ranges between 16 and 17 per cent. The increase or decrease in this concentration is indicative of incomplete combustion or free sulphur passing through the chambers and sublimating of the cooler tube. The latter is one of the most prevalent conditions. As sublimation increases, efficiency decreases because of a burner formation creating an insulating effect on the inside of the tube.

When the proper cooling temperatures cannot be obtained because of the inefficiency of the cooling system, it is necessary to shut down the plant, which in many cases requires from two to three days for removal of sublimation. This in itself constitutes a large overhead factor. Then, of course, any concentration of SO_2 in excess of 17.5 per cent in most systems is a direct indication that excessive sulphur for the final amount of sulphurous acid produced in being wasted.

Intermittent Orsat analysis, in a measure, can serve as a

running guide, but experience has indicated that in most every plant where the results of the Orsat are the governing factors, sublimation and waste of sulphur is prevalent. In plants where the continuous type of electrical analyzer is used the conditions above mentioned are not to be found.

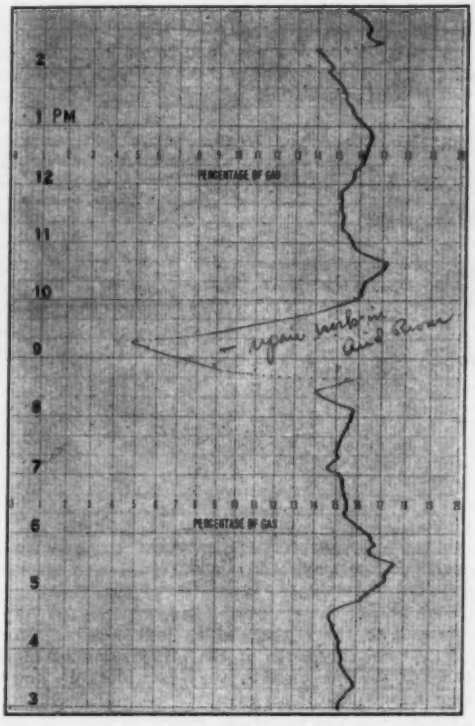


Fig. 2—SO_2 chart

The operator is careful to follow a predetermined curve set by the sulphite superintendent. Any radical departure of the pointer from this predetermined curve enables him to increase or decrease his excess oxygen in order to again follow the curve set for him.

Figure 2 illustrates a record of SO_2 as produced in a plant manufacturing sulphite paper. A sudden drop of SO_2 percentage indicated that the rate of sublimation was so excessive that the gas concentration regardless of the adjustment of the burner made a gradual drop of 4 per cent. This indicated to the operator that the sulphite superintendent should be consulted. It happened that sublimation concentrated only in the entrance to the cooler and the damage could be rectified with only a few hours' delay. You will notice on the chart that within two hours the SO_2 concentration was again back to normal. The chart very clearly demonstrates the danger of sublimation, particularly in its advanced stages. By having an immediate indication that the excess of sulphur was causing stoppage of the tubes, the plant was shut down and the repairs rectified without serious loss on their conversion yield. This chart was taken from an instrument after it had been in operation for approximately ten hours. Had the superintendent been without the use of the record for the rest of the day, at least two or three days would have been required to make complete repairs to his cooling unit.

This knowledge, aside from saving sulphur and preventing serious delay in the operation of the plant, also gives an indication of what is happening in the tail-end of the process. For example, you may have a problem confronting you at the present time where the City Ordinance in your locality is imposing a fine each day when an excess of 1 per cent SO_2 eminates from your exit stacks. The damage this gas causes to vegetation and the neighboring community in many instances results in thousands of dollars. Knowing that your burner is operating at maximum efficiency without forcing free sulphur through the tubes, it is obvious that the tail gases are well within the efficiency yield generally set for the sulphuric acid plant. It is surprising to note that of the hundreds of installations in sulphite plants today, the question of exit gas has become a secondary issue, whereas before it enters it is one of the major problems.

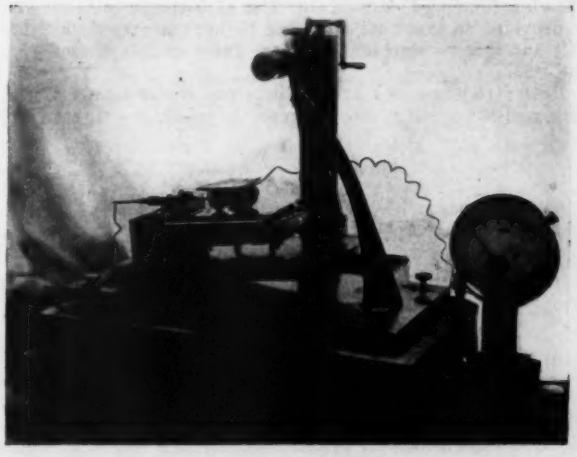
From the foregoing facts, the conclusion can therefore be reached that (1) the SO_2 recording analyzer of the continuously recording type saves approximately 10 per cent of sulphur, (2), because of strict adherence to a predetermined SO_2 curve it eliminates the necessity of long periods of shutdowns which are obviously very expensive, and (3) any danger of excess of SO_2 passing through the exit stacks is entirely eliminated.

Measuring the Oiliness of Oil

Plant maintenance engineers know from experience that lubricating oils differ from each other in their ability to adhere to rubbing surfaces, in their so-called "stick-to-it-iveness," oiliness, or whatever term you wish to apply to this quality. Fatty oils possess a higher degree of oiliness than mineral lubricating oils, but the higher cost and oxidizing tendencies make the use of the fatty oils impracticable for all purposes of lubrication.

Heretofore, there has been no satisfactory means of measuring the oiliness of oils and such methods as were in use involved the utilization of delicate laboratory glassware and the measurement of the relative surface tensions of oils. But now there has been developed by W. C. Wilharm, of the Research Laboratories of the Westinghouse Electric and Manufacturing Company, a device for measuring the oiliness of oils, which instrument is relatively simple and capable of withstanding, successfully, ordinary usage.

The apparatus consists of a weighted platform supported by three highly-polished steel balls and resting on an equally highly polished steel plate which is covered with a film of oil. The steel balls cut through the fluid film and rest on the tightly absorbed film built up by certain molecules present in the lubricant. The plate is fastened to a hinged platform which is raised slowly by means of a crank.



Wilharm's apparatus for measuring the oiliness of oils

By this procedure the angle between the plate and the horizontal is increased gradually until the weighted platform supported by the steel ball moves, slipping over the absorbed film of molecules. The slightest movement of the platform is rendered perceptible by the action of a voltmeter connected in a circuit which is made when the platform comes in contact with a needle after moving only 0.001 inch. The tangent of the angle between the plate and the horizontal attained when the platform begins to slide is the coefficient of friction. In this way the device—by determining the angle at which the balls will slide over their absorbed film of lubricant—measures the oiliness of the oil. Of course, the smaller this angle, the greater the oiliness and the better the oil for lubrication purposes.

Electric Drive for Winders

By J. W. COREY

Reliance Electric & Engineering Co.

THE installation of sectionalized electric drive on paper machines brought to the attention of winder and electric machinery manufacturers the fact that it might be possible to simplify the drive and improve operation of winders by the proper application of electric motors. A complete study of winder application was made, various experiments tried and the following results arrived at.

Four drum winders were first considered. The schematic sketch, Figure 1, shows the method of winding—the paper is carried to the back-stand (E) which has a friction brake preventing the paper from feeding too freely when winder is running.

The paper is then fed to the slitter knives (F) which cut the sheet to the proper widths called for on orders. The paper is then fed to the different combinations of winding drums, some to (D) and (C) and some to (A) and (B).

The Drums (D) and (B) pull the paper from the back-stands and feed it around the cores which are placed between (D-C) and (B-A).

Figure 2 schematically shows the old type of mechanical drive. It will be noted that a motor drives shaft (G) which

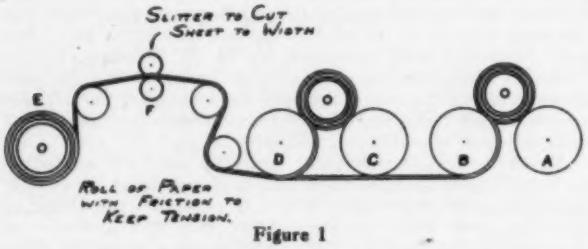


Figure 1

has on it pulleys for driving all the drums. The drive to drum (D) is constant but the other drums have tapered pulleys, allowing for speed adjustment. The adjustment to drum (B) is provided so that this drum can be kept in step with drum (D) and that no slackness is in the sheet as it is drawn from the reel.

Drums (C) and (A) are made to run faster than (D) and (B), and the greater the difference in speed, the tighter will

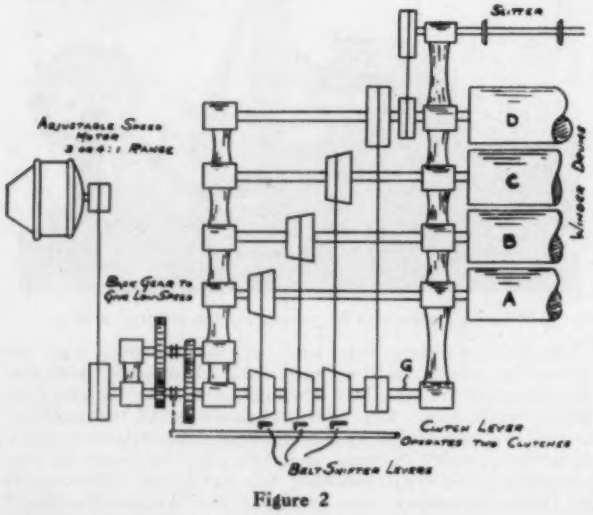


Figure 2

be the roll of paper, due to the increased friction to which the sheet is subjected as it is wound.

Consequently the tension as the paper goes on the roll must be produced by actual slip between the variable-speed drum and the roll. This slip is a definite quantity depending on the drum speed. The pull that it produces on the roll, and hence the hardness of the roll, will depend upon the weight of the roll and the kind of paper. The tendency is for the roll to grow harder as it grows larger and heavier, unless the slip is adjusted by changing belt position. That is directly contrary to the tendency desired which is for a hard center and slightly soft exterior.

No means of measuring slip or tightness can be given and the quality of roll depends upon the skill of the operator.

An electrical drive shown in Figure 3 was developed. This drive consists of an electric motor connected to each wind-

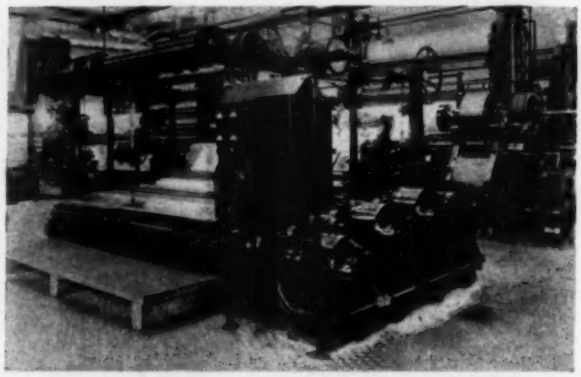


Fig. 3—Reliance Motors driving a four-drum winder. This drive requires few adjustments and makes the work easy for the operator. The four ammeters at all times give an exact indication of how hard the rolls are being wound

ing drum and to the slitter, which makes a very neat mechanical tie-in and because of the elimination of short belts and outboard bearings makes very considerable power savings. Less floor space is occupied.

In working out the electrical characteristics of the drive to tie-in with the quality of roll desired, it was decided to substitute a definitely limited "pull" for the actual slip necessitated by the use of belts.

The motors each have a rheostat in their fields and this rheostat can be set to give a variable tension on the sheet with little or no slip. This tension is directly proportional to the current taken by the motors. The current can be measured by ammeters and gives a good indication of how hard the rolls are being wound.

The motors are so designed that this constant "pull" once set, is maintained from start to finish of the roll being wound.

It is accomplished by designing motors for the variable drums with characteristics so that they run at slightly higher speeds under light load such as when the rolls are started on the core. As the roll builds up and the motors take on greater load due to increased weight, the speed of the variable drum motors drops until it approaches the constant drum speed. The tendency to run faster causes a greater relative pull which maintains a constant tension.

Starting and Running

To operate the winder, the separate motor rheostats are first set to give the variable drums the desired excess pull. Then the main regulator (X) is turned to start motors at a slow speed. If the paper requires to be threaded, that is now done. With paper threaded, the main regulator is turned to whatever maximum winding speed is desired. To stop, press the "stop" push button or turn regulator handle back to "off" position. It is not necessary to adjust individual drum rheostats except for changes in grades of paper, or sometimes for changes in weather.

The slitter motor is arranged to start and stop with drum motors and to vary in speed with them.

The entire equipment is very simple to operate and for the first time gives the papermaker a means of measuring the hardness of rolls of paper as they are wound and before the rolls are damaged. Figure 3 shows ammeters mounted

convenient to operator. A great number of them have now been installed on various grades of paper. The drive is adaptable to both four and two-drum winders. It was developed by co-operation between Moore & White Company, the Reliance Electric & Engineering Company and the engineers of various paper companies.

Wear-Resisting Metal for Chains and Buckets

To more adequately meet the severe wear encountered by chains and buckets in the handling of abrasive materials, the Jeffrey Manufacturing Company, Columbus, Ohio, after thorough laboratory and field tests, recently placed on the market a new line of Supermal chains and buckets.

The processing of malleable iron to give it combined characteristics of extreme hardness and toughness for special purposes has been a practice with The Jeffrey Company for more than 20 years. The modern industrial requirements for metals of higher wearing value and greater strength caused them to apply the process more generally. Its use in connection with malleable chains and malleable buckets began five years ago. The perfected metal is now being offered to all industries under the registered trade name of "Supermal."

The manufacturer states that Supermal embodies greater resistance to wear, higher tensile strength, and a higher elastic limit than heretofore developed in malleable iron. It is "file hard"—it cannot be touched on the surface with the flat of a file, yet it retains those desirable qualities of malleable iron—toughness and ductility. The cost of Supermal is only little more than ordinary malleable chains and substantially less than that of manganese chains.

Jeffrey Supermal is recommended for conveyors, elevators and chain drives subject to abrasive or gritty conditions. It is also recommended for chain drives where something harder and stronger than standard malleable iron is required to withstand severe usage. Supermal chains, attachments and buckets can be furnished in all standard sizes.

Apmew Pulp Screen Improved

American Paper Machinery and Engineering Works of Glens Falls, N. Y., announce the Apmew Pulp Screen Improved.

These improvements are the result of developments accomplished by the company's engineers in Germany, Sweden, Canada, and United States. These improvements are now included in the new pulp screen.

This pulp screen improved has many refinements which improves the quality of screened pulp, reduces the percentage of rejections, increases the capacity, decreases the power consumption, permits screen to perform equally well as first screen or tailing screen, and eliminates clogging toward an impossibility. It has mechanical refinements which are productive of greater dependability and longer life. It has a gentler screening action, which extends considerablv the life of the long lived screen plates. Apmew Pulp Screen Improved produces finer quality pulp, with larger capacity, and with greater economy of power, and is an interesting mechanical masterpiece.

Strong Scott to Build Addition

The Strong Scott Mfg. Co., Minneapolis, manufacturers of flour mill and grain elevator machinery and coal pulverizers, will immediately begin the erection of a new plant to cost approximately $185,000. The new structure will be of reinforced concrete, 100 x 360 feet, four stories with full basement to cover half a block. Garage facilities are provided and provision is made to connect with the terminal tunnel system which links shipping rooms with the Minnesota Transfer freight station.

The decision of the Strong Scott Company to build at this time has been brought about through a desire to contribute employment during the present dull period. Plans have been completed for sometime, and it was felt that the present was a most auspicious time to have this work done. The new plant will be completed shortly after the first of the year.

Dayton Rubber Co. Announces New Type of Belt

The Dayton Rubber Mfg. Company, Dayton, Ohio, announced through its president, Mr. J. A. MacMillan, that it has just completed negotiations with The Roderwald Company of Berlin, Germany, for the manufacturing and distributing rights in North, South and Central America of the new and revolutionary Vee shaped Link-Wedge belt. Manufacture of the new belt will start in about 60 days.

"The Link-Wedge belt is constructed of fabric and rubber and was perfected by Herr Roderwald, president of the Berlin company, after ten years of experimentation, and is of Vee type construction with integral cogs on the inside and runs on a standard Vee shaped pulley. Uses for the new belt are practically unlimited," stated Mr. MacMillan. "The outstanding feature is that this Vee belt is adaptable, flexible and adjustable to any length desired. A metallic clamp is used to join the ends, and is a feature no other manufacturer has been able to perfect in Vee belts heretofore.

The new Link-Wedge belt will augment the Dayton Rubber Mfg. Company's present line of endless Vee belts now in use in practically every branch of industry on power drives ranging from fractional to thousands of horsepower.

Cyanamid Enters Deal with Glass Company

What was described as "a very advantageous arrangement" for both companies has been completed between the Pittsburgh Plate Glass Co. and the American Cyanamid Co. for the development of certain chemical products now manufactured by the companies.

These companies are not competitive in the manufacture of these products, but the Cyanamid Co. and its subsidiaries, as well as the Pittsburgh Plate Glass Co., are large consumers of soda ash and caustic soda, which the latter company now produces.

The Kalbfleisch Corporation, one of the Cyanamid Co.'s subsidiaries, consumes and sells quantities of soda ash and caustic soda.

The arrangement also involves the erection jointly, by the two companies, of a new soda ash and caustic soda plant on the tidewater in the South where raw materials are available at low costs.

One Hundred Issues of Welding Magazine

The November issue of **Oxy-Acetylene Tips** marks the one hundredth milestone of this very interesting organ of the Linde Air Products Company. The period of 100 months has witnessed a development in the oxy-acetylene industry which constitutes a distinct achievement.

The publication was originally planned as a house organ, but its development and growth has been such that it has expanded to a circulation which is claimed to be greater than the combined circulation of all other magazines in the field.

New $4,000,000 Corporation

Organization of General Water Treatment Corporation under Delaware laws as a holding company to merge the interests of The Permutit Company, New York, and the Ward-Love Pump Corporation, Chicago, both specialists in equipment for the softening and purification of water, as well as in allied chemical and mechanical lines, is announced in a letter to stockholders of The Permutit Company from W. Spencer Robertson, president.

The companies in the merger have combined assets of more than $4,000,000. Mr. Robertson will be president of the corporation and Francis N. Bard, president of the Ward-Love Pump Corporation, will be chairman of the board of directors. Other board members will be Vincent Bendix, Harry M. Durning, William M. Flook and Kenneth B. Schley.

The Permutit Company was the pioneer in the zeolite water softening industry in this country and is the owner of valuable basic patents covering the apparatus and the zeolites used in this process under which it has granted licenses both here and abroad. Its plants are located at Brooklyn, N. Y., and Birmingham, N. J., at which latter place it also has large deposits of natural zeolites. In addition to its

executive offices in New York City it has 23 sales offices strategically located throughout the United States. The Ward-Love Pump Corporation has two plants located at Rockford, Ill., its executive offices being located at Chicago, Ill., and enjoys unusual facilities for the distribution of its products through the Crane Company, manufacturers and distributors of plumbing supplies with over 100 branches in the United States.

Paper Break Indicator and Recorder Light Relay

Various methods have been used in the past to indicate breaks in paper during manufacture. These mechanical devices have usually operated by objects dragging on the sheet and closing contacts by gravity when a break occurred in the paper. Their great disadvantage was that they had a tendency to mark the wet and impressionable sheet. They were especially harmful to high-grade and heavily loaded papers.

The Westinghouse Light Relay Paper Break Recorder has no direct contact with the paper itself, but indicates instantly when there is trouble, records the exact time it occurs, keeps a record of the number of breaks, and how long the machine

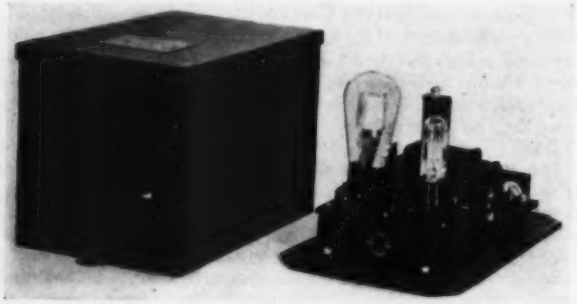


Fig. 1—A light relay consisting of a photoelectric cell, grid glow tube, relay, transformer and other necessary equipment for mounting in the metal box of the paper break recorder

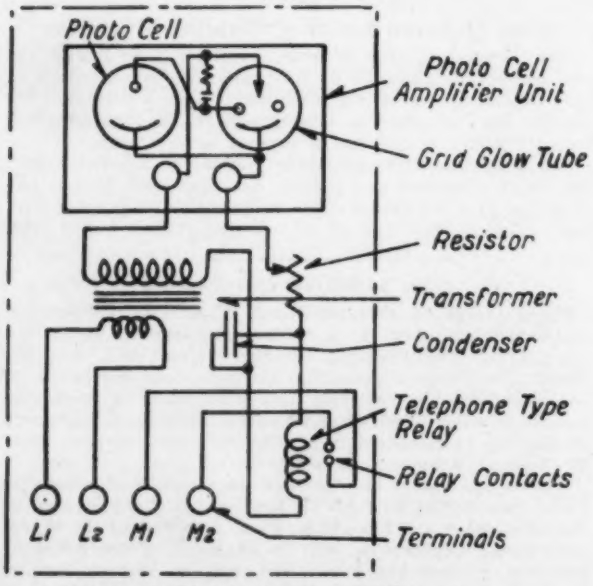


Fig. 2—Wiring connections of light relay

is inoperative in each case. Its advantages are at once obvious.

The apparatus includes a light relay, a light source, and a type U graphic meter, whose chart may be renewed daily. With these can be used a gong, red light, or other device to call an operator's attention.

The light relay (Fig. 1) consists of a photoelectric cell, grid glow tube, relay, transformer, and necessary auxiliary equipment, all mounted in a metal box, about 8 x 8 x10 inches. A glass window in the case permits rays from the light to strike the cell.

In ordinary operation the light relay is mounted above the moving sheet of paper, which shuts off the light from the source beneath—a 100—or 200-watt lamp, depending on distance. Both relay and incandescent lamp are preferably operated from the supply source, 110 volt alternating current.

The instant there is a break in the paper, the light rays passing through the glass window, affect the cell, cause

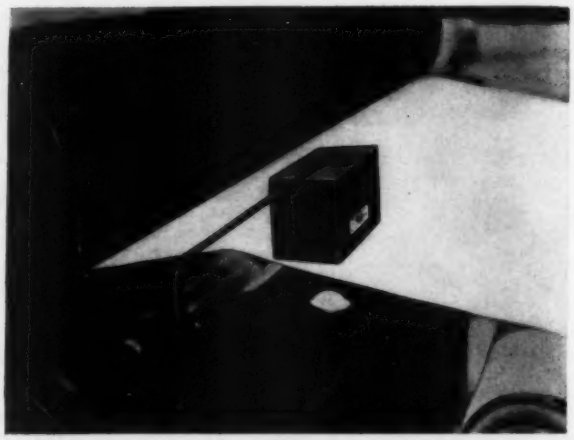


Fig. 3—Paper break recorder consisting of light relay in place ready to record instantly any break in the paper web and stop the press

the grid glow tube to pass current and operate the relay. A gong is sounded, and the graphic meter, placed anywhere convenient, records the event. Figure 2 indicates wiring connections of the light relay.

The photoelectric cell has a long life—a year or more—and can be replaced without disturbance. The grid glow tube has about 5,000 hours operating service. Relay is of the telephone type. All operation is automatic and resetting of any kind is unnecessary.

The Paper Break Indicator is most often located between the press and dryer sections, although if a more complete record of performance is desired any number of indicators may be installed throughout the machine between adjacent sections. It is especially desirable, for example, to have one between the calender and the reel in order to provide a definite check on the exact time paper is being put in the reel.

Some possibilities of this application may be listed:

1—Since operators are warned immediately, time is saved.

2—By means of the record chart a study can be made of the best way of avoiding breaks.

3—The chart also offers a means of analyzing production.

4—Several indicators on one machine will record the whole story of a machine's productive running.

5—The exact location of each break and the time it occurred is preserved on a permanent record.

6—The indicator requires practically no maintenance or attention over long periods.

Improvements at Link-Belt Indianapolis Plant

The Link-Belt Company announces that a contract has been closed for a powdered coal system to be installed at its Indianapolis foundry, entailing an expenditure of $125,000. A building to house the system and alterations in the plant will be included in the improvements.

This well-known company is giving much thought to preparation for future business. A new factory has recently been completed at Toronto, Canada, and a new building has just been erected to house its Pacific Division at San Francisco.

Northern New York Supers Meèt

Highly Interesting Program and Election of Officers at Fall Meeting in Syracuse

THE annual fall meeting of the Northern New York Section of the American Pulp and Paper Mill Superintendent's Association was held at Syracuse on Saturday, October 25. The program of the meeting was an excellent one and well planned. The success of the meeting was due largely to the untiring efforts of the chairman, John Brougham of the Foster Box Board Co., Utica, N. Y., and the secretary, D. M. Kelly, Bloomer Bros., Newark, N. Y. ably assisted by their committee.

Registration of attending members took place at the Hotel Syracuse following which a nominating committee was appointed by the chairman with orders to report at the afternoon session.

Compensating Drive for Top Press Roll

A paper prepared by Raymond Gleason, Franklin Board and Paper Co. was then read by Donald Montville, Shartle Bros. Machine Co., Middletown, Ohio on the subject of "Shartle Automatic Compensating Gear Drive." Mr. Montville in the reading of the paper spoke briefly on the slippage of the top press usually attributed to improper speed of the roll. That slippage of paper machine rolls actually exists was pointed out very clearly in the case of the calender, which slippage actually finishes the sheet. Any pair of press rolls as they are driven today must give slippage. Such a condition is also brought about by weight changes which in turn change the roll diameter.

Mr. Gleason then referred directly to operating troubles experienced on a cylinder machine making a wide range of weights and grades. As a result of the installation of a compensating gear drive on the last primary press (next to the first main press), the sheet widened about one inch. This was attributed to no stretching of the sheet due directly to the lessening of pull on the felt. It was also noticed that the nap on the wet felt was laying down, thus eliminating pickup trouble which existed prior to the installation. The machine speed at the time was 75 feet per minute.

Later the compensating gear drive was installed on the first main press (running bare), the third press and the second helper press. The cumulative effect was a lowering of felt and steam costs together with increased production. The increased life of bottom felts was one week and that of the top felt two weeks. No sewing of felts was required other than when accidently torn through carelessness of an employee.

Greater production was attributed to fewer press, dryer and calender breaks brought about through the manufacture of a stronger and more uniform sheet.

The compensating gear drive was then explained by Mr. Gleason as follows: Ordinarily, the gear on the top roll is keyed to the journal of that roll, and it is practically impossible to obtain correct gear ratios where the rolls are ground to different diameters and different ratios. Therefore, a great many people operate their top press rolls without a gear, and under these conditions the drive of the top press roll is dependent upon friction, this friction being exerted along the face of the roll at the nip. Apparently, therefore, slippage must result at this point.

To overcome this slippage a compensating gear has been designed which in reality is a gear on the top roll which really drives the top roll by friction. A keyed member which is flanged is fastened to the journal of the top press. To this is fitted with a running fit a gear finished at both sides. Special composition rings are inserted between the sides of the gear and the flanges and against the outer flange an adjustable spring pressure is applied, the force of which is exerted upon the face of the gear through the special composition rings, just the same as a friction clutch.

In case of press rolls of equal diameter, one tooth is taken out of the top roll gear which would, if the ordinary method of gearing were used, drive the top roll too fast. By the new method, this permits the slippage to take place in the gear, thus enabling the rolls to be ground down quite a bit without changing the gear.

The remainder of the morning was given over to a round table discussion of the above paper as well as the paper presented by Mr. Michael Argy of the Cliff Paper Co., Niagara Falls, N. Y.

The afternoon meeting was held at the building of the New York State College of Forestry at Syracuse University. The session was preceded by an inspection tour of the Pulp and Paper Laboratories of the College.

Use and Abuse of Rubber Covered Rolls

The first paper presented was that of W. E. Brown, American Wringer Co., Providence, R. I. Mr. Brown spoke on the subject of "Use and Abuse of Rubber Covered Rolls." The author briefly took up the care of rolls and stated that of the many rolls recovered by his company, a great proportion had not given their maximum life prior to recovering, this condition being brought about by a number of different factors. Chief among these was the lifting of weights on one side of the machine only before or after a break, the result being a distortion of the rubber on one side of the roll. The roll soon corrugates under such treatment and must be recovered sooner than should have been necessary. The obvious remedy is to install a device which will remove the weights on both sides at one time. Another cause of corrugation is the tendency to weight heavier on the back side to overcome dryer conditions.

Storage and protection of rolls prior to use was also stressed. Too often new rolls are stored on the machine floor near the machine with their surfaces exposed, thus subjecting the rubber surface to the action of air and light which causes the rubber to harden due to oxidation. Upon being placed on the machine such rolls crack. Rolls should be stored in a cool, dark, damp place and should be turned at regular periods to prevent sagging of the roll.

Failure to grind at regular intervals is stated as another cause for premature recovering of the rolls. It is better to grind a little more frequently than to wait over a period of time thus requiring a severe grinding. Rolls should be ground well below all cracks for if such remain they form a basis for new openings.

Mr. Brown then briefly discussed the plastometer and its uses. This instrument gives the density of the rubber as well as the plastometric set. With respect to the depth of rubber or cushion the author states that the thicker the cover, the less the water removal at the nip due to a lower concentration at the nip. If the wall is increased, the density of the rubber should also be increased. However, if the rubber is too hard, excessive felt wear results, this condition also reducing water removal and tending to cause the roll to become corrugated.

With reference to crown, no one formula can be applied generally to all rolls. Lighter rolls with more spring require more crown. Too often new rolls are constructed with little thought as to the proper type of re-enforcement necessary to give best results on the machine.

Speaking further with reference to roll care, Mr. Brown advises that rolls should never be allowed to rest on rough surfaces. They should not be exposed to extreme cold which causes them to crack and contract. Oil and grease should not be allowed to come into contact with new rolls. All punctures should be repaired.

The author referred briefly to the newer types of rolls especially the rubber covered top press roll brought about largely through the use of the suction press and which is being used considerably on kraft and book. Difficulty is encountered in the use of this type of roll on groundwood inasmuch as the rubber collects pitch. This difficulty may be overcome somewhat through the use of a harder rubber. The use of rubber covered table and stretch rolls reduces friction and at the same time increases wire life.

Development of Papermaking Machine

A paper prepared by C. E. Kinney, Bagley and Sewall, Watertown, N. Y., was then read by Roy Hayes of the same firm. Mr. Kinney in his paper gave a very detailed account of the history of papermaking from earliest time up to the present day. The development and difficulties encountered

in the invention of the fourdrinier machine were very ably brought out by the author.

The invention of the cylinder machine followed the fourdrinier after which dryers were developed. Progress in speed and width was very slow up to 1867. One of the most important factors tending toward an increase in speed was the development of cone drives. The special bevel gear drive has since further added to the speed of the paper machine. Mr. Kinney concluded his paper with a discussion of the more recent developments such as antifriction bearings, Sheehan carriers and new type deckles.

The Williams Sizing Process

The last paper of the day was presented by F. M. Williams, Williams Size and Service Corp., Watertown, N. Y. The author dwelt at some length upon the historical development of the subject of rosin sizing stressing the fact that the major portion of the work in this field pertained to the attachment of rosin to the fibers and dispersion throughout the fiber mass. Caustic was first used to saponify the rosin but later this was supplanted by sodium carbonate this latter chemical liberating gas (carbon dioxide) during the course of the reaction which causes more surface of contact to be exposed between the melted rosin and alkali.

The theory of surface exposure in size making is the basis of the new Williams process. By so doing, better saponification results and it is possible to even prepare size by this method without converting the rosin to soap although the use of soap is beneficial. Maximum surface exposed gives a more favorable means of preparing size. This surface exposure is brought about by the use of the ball mill into which the rosin and other chemicals are placed. As the element of time is important the ball mill is used in preference to a colloid mill.

By the William's process it is possible to prepare size of a high or low free rosin content. No steam is required, thus giving a lighter product from the same grade of rosin than does the usual method of preparation.

The paper was then thrown open for discussion. As a result of questioning, Mr. Williams stated that the free rosin content could be varied at will and that it was possible to have free rosin and free alkali present at one time. Substance such as starch may be added directly to the ball mill in the preparation of the size inasmuch as no boiling takes place which would tend to change the starch. Under ordinary condition there is little or no sludge resulting from the use of this system. This condition ordinarily obtains when a high free rosin size is prepared due to a partial settling out of the rosin particles from the emulsion. The possible agglomeration of the rosin particles is lessened through the use of the William's method inasmuch as high temperatures are avoided, no steam being required.

Election of Officers

Election of sectional officers for the coming year took place following the discussion of Mr. Williams paper. The officers elected were as follows:—

Chairman, Robert Heuer, Newton Falls Paper Co., Newton Falls, N. Y.; 1st Vice-Chairman, A. G. Wightman, Knowlton Bros., Watertown, N. Y.; 2nd Vice-Chairman, B. deB. Millidge, Smith Howard Paper Mills, Cornwall, Ontario, Canada; 3rd Vice-Chairman, Frank Johnson, Sherman Paper Co., Felt Mills, N. Y.; Secretary and Treasurer, R. W. Hines, Newton Falls Paper Co., Newton Falls, N. Y.

National Secretary Eminger on Co-operation

R. L. Eminger, National Secretary and Treasurer then gave a short address, in which he stressed the necessity of co-operation of all members in order to overcome the obstacles which all mills are facing during the present business depression. Mr. Eminger expressed the feeling that the ever increasing membership was an excellent index of the service performed by the association through the co-operation of its members as well as the papers given at the various meetings together with the discussion which they evoked.

The creation of a tissue division was also referred to by the national secretary who closed his address with the announcement of the next national meeting to be held in Dayton, Ohio, June 4, 5 and 6, 1931.

Banquet

The evening meeting was held at the Hotel Syracuse and was preceded by an excellent banquet. Entertainment during the dinner was furnished by the Liberty Quartet.

The toastmaster, L. D. Post, editor and publisher of the **Paper Mill and Wood Pulp News**, spoke briefly of early trade association history in the paper industry and introduced the speaker of the evening, Hugh P. Baker, dean of the New York State College of Forestry, Syracuse, N. Y., and former secretary of the American Paper and Pulp Association.

Dean Hugh P. Baker on Trade Associations

Dean Baker chose as his topic the subject of Trade Associations, and stated that the Superintendents Association must necessarily fall into this category. It was Dr. Baker's feeling that associations of this kind are performing a very vital function at the present time and through their efforts more and better business results.

The attitude of the banks toward organizations of this kind is gradually changing, particularly from the credit standpoint. The amount of credit extended today by banks is measured largely by the ability of an industry to get together with its competitors. The speaker felt that trade associations are here to stay, due to the fact that the conditions affecting profit and loss, namely rapid changes in manufacture and distribution, are less in the hands of the individual than ever before. Of the sum total of these factors, 60 per cent are outside and beyond the control of the individual manufacturer. Fair business throughout the particular industry is an added feature of group organization.

Trade associations must, however, be concerned with the legal aspects of their group actions in order that they may have no trouble with the law. The observance of certain "rules of the road" should prevent the occurrence of such difficulties. These rules were briefly summarized by Dean Baker as follows:—

1. It is illegal to come together and agree as to the price of a commodity. This likewise is uneconomic and from this standpoint alone is not feasible.
2. It is illegal to agree as a group to restrict production.
3. It is illegal to divide or allocate sales territory.

Certain supplementary rules should also be borne in mind. While it is not illegal for a group to compare production and business costs in order to bring about a better understanding, such a group cannot agree as to an average cost of doing business. It is likewise illegal to distribute a black or white credit list.

The paramount problem confronting any trade association and the one from which the greatest benefit can accrue after solving is the development of complete and accurate facts pertaining to the industry. These facts when accumulated should be disseminated throughout the industry.

Overproduction, the chief cause of our recent business depression, is a problem common to all industries. The cause of overproduction of several grades of paper at present may be traced in this particular case to underconsumption of these classes. Another common problem is that of price cutting which may in many instances be traced to overproduction of a certain line. Unfair competition is general in most industries and is usually brought about through the buying of customers regardless of methods or price.

An industry may also face a decline in business due to its failure to maintain standards of quality of its products and service to customers. Stagnation often results from inability to promote technical and merchandising research. Chaos often results from failure to determine satisfactory business terms and bring adherents to these terms.

In view of the restrictive features of the anti-trust laws, an industry can meet the above points only through their trade associations.

At the time of their fiftieth anniversary, the American Paper and Pulp Association attempted to sum up the value of 50 years of organization work. They found that the greatest benefits derived were not from any of the previously mentioned points but rather the intangibles of organization

work such as confidence and good fellowship, without which no organization can succeed. Sound business will always result when distrust, jealousy and selfishness are overcome.

In conclusion, Dean Baker stressed the fact that trade associations are becoming an agency functioning as an industry wide corporation. They are giving industry a means of competing on an industry basis, thus enabling it to meet competition on this same basis.

An Enjoyable Entertainer

At the conclusion of Dean Baker's talk, the toastmaster introduced Joe Andrews "The Will Rogers of Steuben County" who gave his interpretation of the value of a smile. Mr. Andrews through his plain philosophy gave ample proof that he was a firm believer in the motto "Keep Smiling." His talk, while in a lighter vein, carried beneath its surface a wealth of sound advice for all present and if followed should tend to make this a better world in which to live.

The toastmaster then called upon several members of the association for short speeches following which adjournment took place.

New Jersey-Penna. Supers Meet

Special Educational Features Including Visit to Dyestuff Factories Lend Interest to Annual Meeting

A TRIP through the dyestuff factories of Heller & Merz in Newark, N. J., where a complete 14-in. Pusey-Jones paper machine was seen in operation, constituted one of the educational features of the annual meeting of the New Jersey-Penna. division of the American Pulp and Paper Mill Superintendents Association held at Newark in the Hotel Douglas on Saturday, October 25. Another appreciated item on the program was an address by Arthur L. Whiteside, engineer of The Hill Clutch Machine and Foundry Company, Cleveland, Ohio, in which he described, illustrated and demonstrated the mode of operation of a new transmission apparatus called the Hill-Pulvis Clutch, a Swedish invention now on the American market, which differs from ordinary industrial clutches in a number of ways, particularly in its automatic pickup of load and automatic protection in case of overload.

Other Features of the Meeting

Other features of the meeting which gave it a worthwhile character included a round-table discussion of the problems encountered by superintendents of pulp and paper mills in daily practice, with suggestions for their solution; a banquet late in the evening enlivened by music and singing which was followed by an election for officers to serve during the ensuing year, and an address by National President Carl Magnus, in the course of which he announced that the next annual meeting of the national association would be held at Dayton, Ohio, on Thursday, Friday and Saturday, June 4, 5 and 6, 1931.

Aniline Dyes in the Making

At nine o'clock on Saturday morning, members and visitors were supposed to start in chartered buses for the dyestuff factory of Heller & Merz, 338 Wilson avenue, Newark, a distance of nearly two miles by bus routes from hotel headquarters, but difficulty was experienced in rounding up stragglers and it was half an hour after the advertised time before a start was made. The chemical plant of Heller & Merz is one of the landmarks of Newark, as it boasts one of the tallest stacks in the world. Arrived at the factory, the visitors were met by Eugene Merz and a force of department heads who conducted groups of five through the various laboratory buildings, explaining processes of manufacture as they went along. It was equivalent to a post-graduate course in the chemistry of dyestuffs to get the lucid explanations of chemical processes involved in the transformation of aniline oil into fuchsine and other brilliant dyes of more complex constitution. The chemistry of the various coloring substances obtained in a commercial way by the reduction of nitro-benzene was of fascinating interest to several in the party who had only a text-book knowledge of the processes. The course ended with a visit to the plant where ultramarine is manufactured.

How Ultramarine is Made

Heller & Merz are pioneer American manufacturers of this dyestuff and Eugene Merz who has the history and development of the substances at his fingers' ends, gave an extemporaneous lecture on the ancient and modern methods of manufacture, which was of absorbing interest. In another building were shown the steps in the manufacture of the fireclay crucibles in which is fused and roasted the mixture of kaolin, silica, sulphur, soda and pitch of which ultramarine is formed after being roasted in an oven maintained at a high temperature for many hours.

In the raw state prior to roasting, the raw material of ultramarine has the appearance of pale corn-meal and some members of the party were incredulous that fusion and roasting would convert it to the texture and tint of ultramarine blue. The contents of the crucibles are broken up after firing and washed in successive portions of water to remove the Glauber's salt formed in the combination.

New Automatic Clutch Described

The visiting superintendents were the guests of Heller & Merz at luncheon on their return to hotel headquarters. When the tables were cleared, Arthur L. Whiteside, of Hill Clutch Machine & Foundry Company, Cleveland, was introduced and gave a most informing description and demonstration of a new development applied to power transmission known as "The Hill-Pulvis Automatic Clutch." The interior arrangement of the apparatus was shown by means of chalk sketches on a blackboard and the operation of the clutch was actually demonstrated by means of a wire connection with the electric lighting system of the hotel. The interior construction and function of the various elements that go to form the Hill-Pulvis Automatic Clutch were described in detail. Three styles of the clutch are available, as Pulley, Coupling, and an Extended Sleeve type for other than belts or direct drives. The units can be mounted direct on motor shafts, it being explained that the automatic pulley occupies the same space as a plain pulley while the automatic coupling has the same controlling dimensions as other couplings on direct drives. The extended sleeve type has the unit overhanging, with the drive close to the motor.

Features of the New Clutch

Among the chief features and advantages of the new apparatus, as described by Mr. Whiteside were the following:

"The clutch permits the motor to approach full speed before burdening it with load.

"Pickup of speed is automatic and constant for any setting. Adjustment can be made for any load or pickup time within wide limits.

"The clutch is a perfect shock absorber, and prevents shocks and overloads beyond its setting from passing either way between motor and machine.

"It is a balanced, high speed mechanism, even beyond the customary industrial motor speeds.

"Its extreme simplicity and complete closure assure its long operating life without adjustment."

The pulley construction was illustrated as a shell closed at both ends, with a two-blade paddle inside. The interior of the shell has a serrated surface to hold several layers of minute chilled iron balls from slipping. These balls are exceedingly fine, being of about .023 inch diameter, and are graphite coated for atmospheric protection and for lubrication. The paddle is really a rotor with two wings which sweep within .060 inch of the shell.

In operation the rotor is always the driver, the wings being narrow with a wide aperture between them and the rotor for free passage of the steel shot at slow speed.

Function of the Steel Shot

The peculiar feature or function of the minute chilled iron balls or shot is that as the rotor turns, each wing pushes a small pile of shot ahead of it, and drops it as the wing passes above a horizontal position. It spreads several layers of shot over the serrations as it passes, which, at slow speed, pro-

duces very little turning effort against the shell. The bulk of the shot piles up and passes over the wing at the start. As the speed increases, centrifugal force develops. This increasing force causes the wing to hold its load longer, the mass to pile higher against the wing, and a less quantity to discharge through the apertures. This increase in height of pile, increase in density of the mass, greater contact area against the shell layers of shot are said to cause an increase in frictional driving effort far beyond the increase in speed.

Ball Mass Changes in Density

Mr. Whiteside said that from start to full speed the ball mass changes in density from a condition of fluidity, acted upon freely by gravity, to one of solidity, of high pressure and fixity of location, by centrifugal force. This solidity produces a metallic interlock between the wings and shell. It stops the drift of shot past the wings, except in minute quantity along the side of the wings. The actual drift has been determined, he said, as ranging from 1/10 to ¼ r.p.m. in various sizes.

Action in Overloads

It is somewhat difficult to explain the action of the clutch in cases of shocks, jams and other kinds of overloads, without the detailed drawings, but Mr. Whiteside explained that when overloads exceed a fixed driving effort of the mass of minute steel shot, the wings shear through the shot on a layer near the shell. The unit absorbs the shocks coming back to it from the drive so that overloads cannot be transmitted to the machine. It should be stated here that a protective setting of the clutch is provided by changing the quantity of shot and on account of the shock absorbing feature already mentioned, overloads and fluctuations above the protective setting cannot throw belts, strip gears, stretch ropes, or damage chain drives. The shock absorbing feature acts on motor as a maximum current regulator, which has no electrical equivalent, since fuses and circuit breakers go out on overload.

Uses of the Clutch

Mr. Whiteside spoke of the successful use of the Hill-Pulvis Clutch as a starting device, a shock absorber and a power saver on pumps, compressors, blowers, conveyors, centrifugals and similar industrial machinery. He said the apparatus was adapted to all types of paper mill drives in general industrial use and he would welcome an opportunity to work out any special paper mill problem that might be presented to him.

Mr. Whiteside made a decidedly favorable impression by his replies to queries concerning the operation of the clutch. He showed himself to be a master of engineering principles and he convinced his audience that the new apparatus would soon come into general use in pulp and paper mill work.

After expressing the thanks of the meeting to Mr. Whiteside, Chairman White announced the receipt of a telegram from James G. Ramsey expressing regret at his inability to attend and conduct the Question-Box.

Round-Table Discussion

William L. Nixon, a member of the division, who was formerly connected with the American Writing Paper Company, and is now associated with the Moore & White Company, Philadelphia, was asked to contribute some of his experiences and later on in the course of discussion was able to give information concerning the Green Beater Drag, in response to an inquiry by E. C. Gildenzopf for particulars of a device that would indicate the end point of the beating cycle, or how far beating had progressed.

R. G. MacDonald explained the operation of the Green Beater Drag which he said was manufactured by the Bird Machine Company, East Walpole, Mass., and both he and Mr. Nixon said that this was the apparatus which Mr. Gildenzopf evidently required.

There followed some discussion on the basic principles of drying paper which was participated in by Charles H. Kephart, F. C. Farnsworth, E. C. Gildenzopf and Thomas H. Ireland.

After appointing a nominating committee for officers to serve during the ensuing year, a recess was taken until 8 p. m. when all met for dinner.

The Evening Dinner

National President Carl Magnus was the chief guest at the dinner in the evening. A short business session was held at which the Nominating Committee reported recommending the election of the following officers to serve during the ensuing year.

New Officers, 1930—1931

Chairman—E. C. Gildenzopf, Congoleum-Nairn, Inc., Asbestos, Md.

Vice-Chairmen—Charles H. Kephart, York Haven Paper Company, York Haven, Pa.; Ralph W. Shaffer, MacAndrews & Forbes Company, Camden, N. J.; John W. Gregor, The Jessup & Moore Paper Company, Elkton, Md.

Secretary-Treasurer—J. Linville Mullin, The Jessup & Moore Paper Company, Wilmington, Del.

Secretary-Treasurer Mullin reported on the finances of the division. During the 12 months from November, 1929, to October, 1930, the income amounted to $464.39 and the expenditures $308.43, leaving a balance in the treasury of $155.93.

After reading a telegram from "Joe" Dow who is on the Pacific Coast, expressing good wishes for a successful meeting, Chairman White announced that Henry W. Weiss, of the Heller & Merz Corporation, would act as toastmaster in place of Ex-President Ramsey, who was unavoidably absent.

President Magnus Speaks

Carl Magnus was the first speaker. He gave a resume of the work of the national association and announced the decision of the executive committee to hold the next annual meeting at Dayton, Ohio, on June 4, 5 and 6, 1931. He said that the national association in simple terms was a machine through which superintendents could spread their knowledge to the benefit of all. He urged a more general participation in the work of the Mill Service Committee, of which Killey E. Terry, of Cumberland Mills, Me., is chairman. He advised the cultivation of an optimistic feeling in regard to business conditions and improved the opportunity to give his own definition of an optimist and a pessimist, the optimist being the fellow who looks ahead and peers through the clouds to see a non-existent light, while the pessimist is the fellow who comes along and blows out the light. Charles L. Ellis was asked to function for a brief period as toastmaster, which he did, to the entertainment of the gathering by telling a number of humorous stories and making some of the prominent members of the division characters in them. Mr. Ellis called on former-chairman J. E. Blosser to speak. He said Mr. Blosser was not only a good papermaker, but a man with aspirations to be a good golfer. Mr. Blosser responded by telling of his experiences since leaving the Scott Paper Company and going with the Waterways Company, of Chicago, and the International Paper Company.

Retiring Chairman White Gets Vote of Thanks

Toastmaster Weiss called on Mr. Gildenzopf to speak and he responded with a grateful acknowledgment of the honor which the division had conferred in electing him chairman for the ensuing year. He was confident, he said, that he would get the full co-operation of all members in the same way they had favored his predecessors. It was in order, he thought, to thank retiring-chairman White for his services during the past year in arranging a series of successful meetings. He said that Mr. White had the faculty of being able to surround himself with capable assistants, and it was well-known that nothing could be accomplished without organization. He closed by proposing a standing vote of thanks to J. Bertwell White, retiring chairman of the division, which was given with a will by the assembled diners.

Thanks to a good song leader and an excellent musical accompaniment, the intervals between the courses of dinner were merry ones, a closing performance being a character song rendered in costume by Roy B. Underdown, Philadelphia manager of Heller & Merz Corporation, which was enthusiastically applauded. A number of those present engaged in dancing till a late hour in the evening.

Portland Meeting of T.A.P.P.I.

Pacific Coast Section Impressed With its Opportunities and Responsibilities

NEW opportunity and added responsibility as attached to the Pacific Coast Section of Tappi was the keynote of the fall meeting of this group held in Portland, Ore., at the Multnomah hotel, October 11.

R. S. Wertheimer presided for the second time as chairman of the meeting and made a brief opening address in which he stated the general plan of the meeting and what it was hoped might be accomplished for the future progress of the organization. Departing from the former idea of a full program of addresses, this latest meeting featured but two formal addresses, those of Max Krimmel, president of the national association and B. W. Scribner, head of the paper division of the United States Bureau of Standards, both of whom journeyed far from home to bring their national message. Mr. Krimmel from his office with the Hammermill Paper Co. in Erie, Pa., and Mr. Scribner from Washington, D. C. Both gave inspirational talks and contributed many suggestions throughout the dav. and their contributions are incorporated in this further report.

Besides the addresses of these two national figures, the morning session concluded with the annual business session of the local organization.

C. W. Morden of the C. W. Morden Co., Portland, was elected to serve as chairman of the Pacific Coast Section of Tappi for the ensuing year, H. I. Andrews, chief chemist of the Powell River Co., Ltd., was made vice chairman, and Myron W. Black of the Inland Empire Paper Co., Millwood, Wash., was elected secretary-treasurer at the nomination of Dr. H. K. Benson who has acted as executive secretary since the start of the local organization but who asked to be relieved of this duty as he will have leave of absence from his position at the University of Washington for one year and will therefore be unable to serve in his former relation. Dr. Benson is head of chemistry and chemical engineering at the University and has been granted sabbatical leave.

Action was taken on three important points at the business meeting aside from election of officers. The question of dues for affiliated members was discussed, as it was felt that any one who attends meetings of the coast section of Tappi should be willing to contribute to the support of the enterprise. and following this discussion it was voted to charge a fee of $3 annually for this affiiliated membership.

It was further decided that the executive committee of the local group should be empowered to pass on all affiliated membership applications.

The third decision was that only those who are members or affiliated members should be included in the attendance at future meetings.

In connection with the membership discussion it was emphasized that under provisions of the national association only members of this body on the coast will be eligible to hold office in the sectional organization, although affiliated members are permitted a vote.

Afternoon Session

One of the program features which had been anticipated with interest was necessarily missing due to unavoidable circumstances. A letter from C. E. Curran of the paper section of the Forest Products laboratory at Madison expressed his regrets at not being able to attend and deliver an address on his work, and this letter was read by Mr. Wertheimer at the beginning of the afternoon session.

Following this the entire afternoon was given over to committee reports. Before calling on the various chairmen of committees, Mr. Wertheimer stressed the idea that this committee work was of vital importance to the association work and that only as each committee functioned in its highest capacity could the maximum benefit result to all. He urged that every one accept committee appointments without making excuses when such volunteer work was requested.

Myron W. Black of the educational committee was the first one to make a report. Incidentally Mr. Black sounded the note which was characteristic of most of the following reports, that not sufficient time had elapsed for the work to get under way in the committee. With great distances intervening and each one's time crowded it was indicated that the progress of the committee work must be gradual.

Among Mr. Black's recommendations for educational activities was a plan for students to do part-time study in the mills, through co-operation with the state educational institutions. With this plan in mind his committee will make a survey and try to get some practical results within the next year.

C. W. Morden, head of the patent committee, feels that some modifications and improvements must be achieved regarding methods of securing and protecting patents. Although he had not rounded out his committee he hopes to persuade a recognized patent attorney to assist his committee.

R. J. Schadt, who is chairman of the waste committee, said that so far attention had been centered on a study of white water waste in newsprint mills. His report indicated that the work in this phase of study is off to a good start. Dr. Benson at this point suggested that it seemed as necessary to have a pulp waste committee as a paper mill waste committee since the pulp mills are of outstanding importance on the west coast. The consensus of the meeting was that this was a sound idea and a motion was made and carried that such a pulp committee be appointed before the next regular meeting of the group.

Ray Smythe of the Willamette Iron and Steel Works, chairman of the equipment committee, supplemented his report with slides illustrating steam accumulators in a number of large plants. Mr. Smythe advocated a close co-operation between mill owners and equipment houses and suggested that new equipment and its method of operation in local plants be made a part of the discussions in each meeting of Tappi in the northwest, for in this way a better understanding of progress in equipment will result. In closing his report he gave a brief summary of new installations in the new plants of the territory built this year.

Sigrud Norman is being assisted on the acid pulping committee by A. Klingberg and H. Lundberg, and work is being centered on a list of questions which form the outline of study in the coming months.

Leo Friedman promises some intensive work on the study of acidity through his fibrous materials committee.

Ralph Reid and R. S. Wertheimer are pretty well lined up for study of the alkaline pulp problem.

E. P. Ketchum and his group are working out best ways of handling the mechanical pulping problems.

Responsibilities of the Pacific Coast Section of TAPPI.

Max Krimmel emphasized the rapid and enormous growth of the pulp and paper industry on the Pacific coast in the past few years and stated that this section of Tappi was recognized as of great importance to the national association. Problems peculiar to the section make it imperative that special study be given locally to these problems and any findings on such experiments or surveys could be supplemented by information or data available through the national association and by such interchange of ideas and co-operation progress will be made, Mr. Krimmel stated.

He said that his trip to the West Coast had enlightened him on the opportunities as well as the responsibilities connected with local association work, and that he wished more national officers could come out and view for themselves both the problems and the progress in the western pulp and paper industry.

Competition is keen in the West as in every other part of the country and association activities require tact and courage and much study. Mr. Krimmel spoke frankly of the need for greater support of the Pacific Coast section of Tappi and more loyal co-operation on the part of mill owners and managers in allowing their technical men to attend meetings. The attitude in some cases has been, he said, that such attendance might result in some secrets or information being given out with nothing gained in return. Instead Mr. Krimmel urged that this western group should work toward an open exchange of ideas where such a pro-

cedure would benefit the entire industry and bring about mutual advancement and profit.

Mr. Krimmel placed great stress on the benefit to be derived from a standard code of ethics which would effect the protection of individual members and of the various local groups.

Through arranging attractive programs, holding technical meetings, studying latest developments in the field and discussing practical problems, all these difficulties will be minimized and eventually eliminated, but it means constant thought and endeavor on the part of local members. Mr. Krimmel recommended that some study and research on mill problems be conducted through some of the state educational institutions and the result of such tests could be used as a basis for programs and informal discussions.

The national association looks upon the Pacific Coast section more as a Tappi affair than as a sectional activity, and is willing to do everything possible to contribute to the progress of this group, was the promise of Mr. Krimmel.

High Lights of Mr. Scribner's Paper

The problem of deterioration of paper has now become a a major phase of study in the paper division of the Bureau of Standards, and the research deals with five special points.

First: Tests of the current commercial rag fiber and wood fiber product, including the fibrous raw materials.

Second: Tests of similar papers made in the Bureau's paper mill and therefore having a definite known history.

Third: Inspections and tests of papers of known age.

Fourth: Study of means of overcoming influences found to be harmful to the life of papers.

Fifth: Research to determine the nature of the reaction of paper celluloses to deteriorating influences.

The first topic, Mr. Scribner pointed out, has been rather thoroughly analyzed and a comprehensive report has been printed, and experiments are now being made on the second division, during which manufacture of sulphite-soda book; sulphite bond; bond made from highly purified wood fibers, and writing and bond papers in five groups using five grades of rags, will be featured. Two objectives will be observed in this division. (1) To make the best papers possible from the various fibrous materials, so as to obtain a better comparison of the papermaking quality of the raw materials than is possible with commercial papers, and (2) To introduce variables suspected of being harmful, such as overbleaching, high acidity and overheating, for the purpose of observing their effects on the different fibrous materials.

In topics three and four it was explained that these are adequately provided for by the Carnegie Foundation Fund which is specially interested in preserving publications, the money being administered by the National Research Council for the study of all conditions of deterioration of books and papers in storage.

To determine definitely the nature of the products formed by the degradation of cellulose will be the initial point observed in topic five, and having found this a study of the mechanism of the degradation will be given attention. With information on these facts, available plans will be laid to inhibit or delay degradation or to predict whether or not degradation will occur.

Mr. Scribner went into a discussion of cellulose materials rather minutely and their importance in the permanence of paper. Both commercial papers and those made in the Bureau's paper mill have been brought under analysis in this phase of the work. Tables and figures showing tests already made were presented. Starch used in the beater, it was indictated, has little, if any, effect on the stability of paper although it may add somewhat to the strength. Both starch and glue used as surface sizing appear to have some protective effect as well as adding to the strength.

Deterioration of paper may be caused or accelerated by external influences. Library surveys have also shown that publications may be injured by acid pollution of the atmosphere, light, dust, high temperature and high humidity, but all of these detrimental agencies may be minimized to a certain degree through scientific processes.

Mr. Scribner said that the best preservative for newspapers used thus far was Japanese tissue pasted on with starch. He remarked that he had examined issues of the **Morning Oregonian** of Portland for 20 years ago and had found them in good preservation, much better than some other newspapers.

In connection with paper that is well preserved, Mr. Scribner mentioned old Bibles, especially those made by hand.

After completing his formal address, Mr. Scribner was asked several interesting questions which he answered from the floor for the information of local men.

Banquet

Under the genial guidance of Scott Henderson as toastmaster the banquet as the closing feature of the convention proved a fitting climax to the occasion. Informality prevailed and all speeches that were made were brief and seasoned with humor and banter.

The banquet was the occasion, however, for extending a vote of thanks to Dr. Benson for his years of faithful service as secretary of the Pacific Coast Section of Tappi. In his response Dr. Benson outlined what his major aims would be in his year of study in the East, among which was some special attention to lignin and its possibilities.

Others who gave short talks were Max Krimmel and F. R. Titcomb.

At a late hour the members and guests dispersed, anticipating another meeting in the spring, probably at Everett.

Paper Salesmen Hear of Dard Hunter's Work

At the usual weekly luncheon meeting of the New York Division of the Salesmen's Association of the Paper Industry on October 27, Royal S. Kellogg, secretary of the News Print Service Bureau, treated the members to an interesting account of Dard Hunter and his career. Mr. Hunter is renowned as the only manufacturer of handmade paper in the United States, and as described by Mr. Kellogg is the greatest craftsman in the country. A native of Chillicothe, Ohio, when 19 years old he went with Elbert Hubbard and worked with him in his famous printing plant at Roycroft, N. Y., where **The Philistine** was published, for nine years. It was here that Mr. Hunter learned what to avoid in printing. He afterwards spent five years in Europe studying typefoundry, old papers and the art of handmade paper. He applied himself so well to the subject that he became an authority on handmade paper and its watermarks. He pursued his studies in Italy, Belgium and England. In 1913 he began the manufacture of handmade paper in the United States and finally became, as Mr. Kellogg said, "the only maker of a one-man book in the world"; that is to say he wrote the book, made the paper, cast the type and printed it.

Dard Hunter produced three books of that character. Mr. Kellogg exhibited one of the books, dealing largely with watermarks, which was published originally at $30 but which is not now obtainable at under $200. All of the three books mentioned were published in editions limited to 200 each, and all were produced by Hunter himself.

Mr. Kellogg also exhibited Dard Hunter's latest book, "Papermaking Through Eighteen Centuries" which was reviewed by George French in the August issue of THE PAPER INDUSTRY. This book was turned out at the press of William Edwin Rudge, New York, and is produced at $17.50. Mr. Kellogg took occasion to speak in high terms of praise of the mechanical features of this book which reflected the eminent position occupied by William Edwin Rudge in the publishing world.

Dard Hunter's handmade paper mill occupies the site of an old foundry in Lime Rock, a village situated in the northwestern corner of Connecticut. Some of the equipment of the mill was bought in England 12 years ago and Mr. Hunter went to England later and brought a family of papermakers with him from Maidstone in Kent where the famous Whatman papers are made. The head of this family is the fourth or fifth in a generation of handmade papermakers.

In addition to the books, Mr. Kellogg exhibited specimens of the pure rag papers in which Mr. Hunter is specializing under the brand names of "Stockbridge," "Sharon," "Northrop" and "Litchfield," the last two papers named being wove and laid papers respectively. He also exhibited specimens

of the highest grade of rag paper made by Mr. Hunter under the brand name "Salisbury" which sells at something like $60 to $80 a ream, the price depending on the size of the sheet. The papers are not sold by weight but by sheet. Among the papers exhibited was one especially adapted for etcher's use which was embellished with a unique watermark. The papers are marketed by W. D. Harper, Inc., 225 Fourth avenue, New York. Mr. Harper was a guest of the salesmen at luncheon.

Fall Meeting of Southern Superintendents

The fall meeting of the Southern Division of the American Pulp and Paper Mill Superintendents Association was held in Bastrop, La., Friday and Saturday, October 24 and 25. The meetings were held at the Louisiana Hotel and were attended by a large number of members and guests.

O. J. Oleson, chairman, presided, and at the first session introduced City Attorney Hawthorne, of Bastrop, who delivered an address of welcome in behalf of the mayor of the city. Mr. Hawthorne credited the paper industry with the growth of their city and stated that the people were proud to have the members of the association as their guests.

The chairman appointed as a nominating committee, W. M. Carey, of Tuscaloosa; J. M. Murray, of Bogalusa, and Adam Rozyskie, of Mobile.

A banquet was served on Friday evening, which was a highly enjoyable social occasion.

Among the speakers on the program Saturday, the 25th, were W. A. Gocke, of Shartle Bros. Machine Co., who gave an interesting talk on the Compensator Drive Gear; Mr. Reed, of the Reed Lumber Co., Centerville, Miss., who suggested his city as being a most suitable location for a paper mill, and W. H. Sievert, one of the division chairmen of the National Association gave an inspirational talk. C. T. Wilson of the International Paper Company, Bastrop, gave a short address in which he expressed the belief that the organization was in need of more concentrated effort on the part of everyone.

New officers elected for the ensuing year are: Chairman, Adam Rosyskie, Mobile; first vice chairman, A. Nadua, Moss Point; second vice chairman, C. L. Crain, Moss Point; third vice chairman, S. M. Dodge, Moss Point; fourth vice chairman, J. M. Murray, Bogalusa; fifth vice chairman, Bruce Suttle; secretary-treasurer, W. W. Henderson, Mobile.

The next meeting will be held at Mobile, at which time it is hoped the new Panama City mill will be in operation.

New Catalogues, Books and Publications

Babcock & Wilcox Co., New York City—"Fusion Welding" is a new publication just released, in which a new method of welding is discussed which, the company claims, eliminates the necessity for long training or great skill on the part of the operator. A chapter is devoted to the non-destructive tests employed by this company to prove the efficiency of welded seams.

Combustion Engineering Corp., New York City—A new 28-page catalogue feaures and describes the Type E Underfeed Stoker which is recommended for burning either coking or non-coking bituminous coals and for various refuse fuels. This stoker is applicable to boilers ranging from 150 hp. up to 600 hp., and may be installed in a battery of two or more boilers. The catalogue contains line drawings shewing suggested application of this stoker to various types of boilers and test data.

De Laval Steam Turbine Co., Trenton, N. J.—This company has issued a pamphlet entitled "A Pioneer in High Pressure Steam" which has been prepared by Geo. H. Gibson. This booklet relates interesting information concerning the work of Carl Gustaf Patrick De Laval, the designer of the De Laval steam turbine, and gives him credit for the origin and practice of many developments in high-pressure steam turbines. A number of drawings of the De Laval turbine are included, also illustrations of prominent installations.

Diamond Rubber Co., Akron, Ohio—A new catalogue is just off the press in which this company features its line of belting, packing, hose, matting, etc., for industrial use. The cover and mailing envelope of this publication were printed from rubber engravings hand-cut from sheet rubber manufactured by the company.

Fidalgo Drying Systems, Inc., New York City—Two new bulletins, Nos. 310 and 311 have recently been issued. No. 310 is descriptive of the Sticktite Dryer Felt Seam, which is said to have been used to replace the ordinary sewn seam in a number of eastern mills. No. 311 describes the Leahy Chip Screen which is of the vibrating type and so designed to take up very little floor space. Copies on request.

Finnish Timber & Paper Calendar—A copy of the third edition of this directory has just been received. Some new items have been introduced and the material partly rearranged. The number of timber contract forms has been largely extended and contract forms for plywood inserted for the first time. In the sections enumerating sawmills, plywood factories and paper, cellulose and mechanical wood pulp mills a great number of alterations have been made. All sections have been brought up-to-date and references to individual firms are as complete and accurate as possible. Copies may be ordered from The Finnish Timber and Paper Calendar, S. Esplanadg. 2, Helsingfors.

Hungerford & Terry, Inc., Clayton, N. J.—Water purification plant equipment as manufactured by this company is the subject of a new catalogue, which will be sent on request. The subject of water filtration is covered in a general way, and the company's equipment and special application to various uses is treated in a most thorough manner. There are numerous drawings and illustrations.

Lewis-Shepard Co., Watertown, Mass.—A new catalogue has been issued containing specifications and illustrations of this company's complete line of unique floor trucks. There are special models for handling paper stock and rolls. Copies on request.

Link-Belt Co., Chicago—A new comprehensive data book, No. 1050, is devoted to Promal Chains, both plain links and attachments. Promal is this company's new long-wearing metal for cast chains, for power transmission and conveying services. The book gives dimensions, strengths, list prices and weights, and is free upon request.

Magnus Chemical Co., New York City—"The Cleaning of Metal" is the title of a handbook just published by this company which treats the subject in a thorough technical style. The book is literally a text book, and is believed by the publisher to be the first book of its kind to be published on this particular subject. The different cleaning materials and cleaning operations are discussed, the Magnus method explained and there are tables, formulas and glossary of technical words.

Metropolitan Life Ins. Co., New York City—"Making the Plant Safe," the ninth of a series of reports on industrial safety, has just been published by the Policyholders Service Bureau. This study describes methods which are used by employers to provide safe working conditions, and discusses some of the fundamentals for adequately guarding certain types of machinery. The Bureau has also just completed a survey of the budget methods and systems of more than 80 representative manufacturing concerns, the results of which have been published in report form under the title "Budgeting Manufacturing Operations." Copies upon request.

Murray Iron Works Company, Burlington, Iowa—The Murray Type "A" water tube boiler is the subject of a new catalogue, No. 98. This boiler is an improved form and the details of its construction are clearly explained and illustrated. Consulting and operating engineers will be interested in receiving this catalogue which will be sent gratis.

Naylor Pipe Co., Chicago, Ill.—A new catalogue which features the details of construction and structural economies of Naylor Spiralweld Toncan Iron Pipe is just received. The catalogue contains engineering data which is taken from the test report made on Naylor pipe by Melvin L. Enger and W. M. Lansford in the Materials Testing Laboratory of the University of Illinois. These tests were made to obtain comprehensive information as to the physical properties of Naylor pipe.

Reliance Electric & Engineering Co., Cleveland, Ohio—A recent bulletin No. 109 just issued by this company brings out the special advantages of Type AA Reliance Induction Motors. The text is supplemented with numerous drawings and illustrations, also dimension tables.

Sullivan Machinery Co., Chicago—Late publications issued by this company include Bulletin No. 76-L descriptive of the Sullivan Turbinair Cathead for air or steam, designed for odd jobs of hauling or hoisting; No. 87-D covering Sullivan Rock Drills, and No. 76-M giving information on Sullivan Turbinair Portable Hoists.

Warren Steam Pump Co., Warren, Mass.—An interesting little book entitled "Warren Pumps and the Organization Behind Them" gives a short history of this company with views of the plant and interiors. Short chapters describe installations where these pumps are being successfully used, among these being mentioned a number of well-known paper mills.

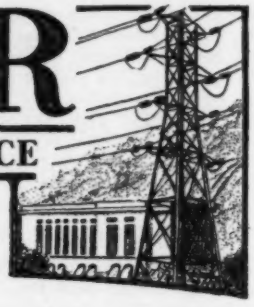
BOOK REVIEWS

Crane Engineering—The Whiting Corporation, Harvey, Illinois, one of the major builders of cranes for the past 30 years, has felt that a handbook on the subject of "Cranes" would be welcomed on the part of engineers and crane buyers. They have, therefore, spent considerable time and effort in compiling the data contained in this book. There is complete data on clearance for standard cranes, a chapter covering each different type of crane, and a large number of illustrations. The book is very attractively printed in two colors on coated paper and bound in leather. It is thought to be the first work of its kind to be published on this subject.

Chemical Engineering Catalogue—The 1930 edition of this valuable publication has just been received. This catalogue contains condensed and standardized data of equipment, machinery, laboratory supplies, chemicals and raw materials used in the industries employing chemical process of manufacture. There are classified indexes of such equipment and materials carefully cross referenced, also a section listing technical and scientific books. The book is published by the Chemical Catalogue Co., Inc., New York City.

POWER

GENERATION - UTILIZATION - MAINTENANCE



By W. S. JOULE

This section turns the searchlight upon power and its allied problems. It shows up big possibilities to save. Opportunities to improve conditions, methods, apparatus will be discovered. Worth while practices suggest new ideas and wider usages of equipment.

Saline Tests for Water Flow

THE salt method or saline test is used quite extensively to measure the flow of water. Salt is added to a stream at a constant rate. Downstream, a sufficient distance to make sure that the salt has been properly mixed with the water, samples of water are tested to determine the amount of salt in a given quantity of water. In this way an accurate measure of the rate of water flow is obtained.

For example, if each sample of water is of one cu. ft., and if it is found that there is 100th of a lb. of salt per cu. ft., and it is known that the rate of adding salt upstream is one lb. per second, then it is apparent that the flow is 100 cu. ft. per second. Of course, the method is not quite as simple as this, although the three requirements are that the salt be fed into the stream at a constant rate, that the quantity of water sampled be a definite known amount and that the distance between where the salt is put into the water and the sample picked is sufficient to assure a thorough distribution of the salt in solution. This matter has been fully covered from time to time in the various civil ble for hydroelectric developments should be familiar with this method and use it.

Wisconsin's Boiler Experience

WHILE each individual has his or her own individual characteristics and peculiarities, human beings are sufficiently uniform to enable various authorities and insurance companies to obtain what may be called "mass" figures showing life expectancy, death rate per 100,000 for different years, annual death rate for various of these etc. The same is true of boilers. While each individual boiler has its own individual "personality," there are certain conditions common to all boilers. When these are studied, a yardstick or index that suggests where the most attention should be given and what conditions should be guarded against most, is obtained.

The Bureau of Engineering, State of Wisconsin, in its recent quarterly report brought out some interesting information in regard to boilers that may cause their condemnation or order for repairs. During this quarter, the inspectors for the State of Wisconsin condemned four boilers and issued 370 compulsory repair orders.

The most frequent cause of trouble was dust, oil or scale, which produced 61 defects calling for an order for correction. In 59 cases, blowoff pipes were missing or defective.

Forty boilers were ordered corrected for defective water column or connection, 34 improper feed lines, 27 gauge cocks missing or defective, 20 safety valves defective or improperly installed, 19 pitting or corrosion, 15 leak, 12 steam gauges missing, 11 defective tubes and 10 had defective settings.

How Reliable Are Hydro-Electric Units?

SOME interesting data was brought out at a recent meeting in Chicago of the National Electric Light Association's Hydraulic Power Committee. Farley C. Ralston, Chairman of the Sub-Committee on Reliability (which covers, of course, central station and public utility plants only), submitted a report covering 191 units in operation during 1928. These units represented a total of 4,202,300 hp., of an average rating of 22,002 hp. All were modern, having been installed since 1919. These 191 units averaged a total outage time from all causes of 3.52 per cent and an outage time when in demand of 0.78 per cent. A study made of 207 large steam turbine units during the same year showed an outage of 9.69 per cent and 2.74 per cent respectively. The service demand availability factor for the hydro-units was found to be 99.07 and the availability factor for the steam units was found to be 96.06. If the outage time is taken at 100 per cent, then 11.76 per cent outage was due to hydraulic causes outside of the plant; 54.57 per cent is chargeable to the water wheels and their auxiliaries; while 33.67 per cent is accounted for by the generators and their appurtenances.

These figures are very interesting for they show that hydro units are almost three times as reliable as steam units, when the outage time from all causes is considered, while the reliability of hydro units when in demand is more than three times that of steam units so far as outage time when in demand is concerned. Of course, these figures do not tell all the facts and it is well known that a hydro unit may be kept in service long after it should have been taken out of service, because a large amount of damage or injury cannot be done, whereas with the high peripheral speeds and very small clearances of the steam turbine usually require that a unit be shut down in order to "play safe."

A study of outage time is illuminating because it shows that 11.76 per cent is due to hydraulic causes outside of the plant where 54.57 per cent was chargeable to water wheels and their auxiliaries and 33.67 per cent were due to generators and their auxiliaries.

It is unfortunate that an analysis has not been made covering the 54.57 per cent outage chargeable to the water wheels and their auxiliaries, so as to give some idea as to what extent governors and other mechanisms were to blame. In spite of their low speed and ruggedness, it seems that hydro units can still be improved, both as to individual design a well as plant layout.

Hazards of Portable Electric Lamps

A NUMBER of men are killed each year by electrocution due to electric shocks from portable electric light and lamp cords. The remedy is to maintain these cords in first-class shape, use only cords of the highest grade insulation and lamp sockets and guards of insulating material.

Power plant and papermaking equipment represent a very high grade of ground or earth, that is one of very low resistance because of its contact with water pipes, ashes, steel work submerged in the earth, etc. Consequently, contact between the human body and a live circuit affords only a low resistance for the flow of current, hence the danger. Moreover, men working around machinery, strictly in boiler rooms, are dirty, grimy, hot with perspiration. Thus the contact resistance is low, so encouraging high current flow with only low voltage.

A report from the National Safety Council issued during October states that "Contact with the so-called 'low voltage' electric current, carrying charges of from 110 to 750 volts, is always dangerous and under certain conditions, fatal. There have been more than 100 such cases which have re-

sulted fatally in the United States and Canada during the past two years. . . . Of 107 cases studied 44 or more than two-fifths were caused by ordinary 110 alternating current voltage." Only nine fatalities occurred in mines as contrasted with the 58 purely industrial fatalities.

The National Electric Light Association in conducting an inquiry found that out of 106 cases of fatal electrocution, 45 involved the use of defective materials. Both the National Safety Council and the National Electric Light Association agree that "at least one-third of the fatalities may be attributed to defective materials such as the lamp cord not properly maintained." The report continues by emphasizing the necessity of using proper types of extension cords and the careful maintenance of such cords and all other electrical equipment. The use of weatherproof sockets is urged as is also the proper grounding of portable devices of all kinds when used in damp locations. So, every foreman, superintendent and safety engineer should formulate rigid rules in regard to electric portable lamp cord, in the handling of electric wire, etc., during temporary work, repairs and maintenance. These rules should be enforced; and every man should know them and understand why they are so important. A system of maintenance should be maintained to repair defective lamps, sockets and cords.

To Put Out Oil Fires

A VERY satisfactory fire extinguisher for putting out oil fires around bearings, electrical switches and transformers,—wherever small quantities of exposed oil are involved—consists of a mixture of sawdust and finely powdered soda, alum or sulphate of alumina. The mixture is scattered over the fire in a heavy layer, so as to choke the fire by cutting off the air supply.

A mixture which has been found satisfactory consists of about 20 lbs. of sulphate of alumina or alum and 80 per cent of sawdust, which is equivalent to about 7 lbs. of chemical per cubic foot of sawdust. Sawdust from oak or beech has been found to give the best results.

A mixture of this sort can be easily stored in sheet metal boxes located at strategic places. It does not cost much to take this precaution, but it is very worth while. The boxes should be marked, of course, in some ways such as "For Extinguishing Oil Fires" and those responsible or in the proximity should be told how to use the sawdust.

Packing for Steam Turbines

WHEN installing carbon or metallic packing on steam turbines, care should be exercised that a slight clearance is left between the packing and the shaft under running conditions. Otherwise with the packing under pressure it will hug the shaft more tightly, scoring it and causing heating and vibration.

For carbon packing, a clearance of about .001 to .002 in. per inch of shaft diameter with the machine fairly cool seems to give the proper clearance. Metallic packing expands with the shaft, but carbon packing does not, so less clearance is required when metallic packing is used.

How Often Do You Check Instruments?

INSTRUMENTS, and this means not only voltmeters, ammeters, wattmeters and other instruments on the electrical end, but also thermometers, steam flowmeters, hot well and other thermometers and all instruments throughout a plant—should receive periodic inspection and testing. In too many cases, instruments are installed in such a way that testing them is very difficult, and instead of having them checked or tested "in situ," it is necessary to take them down and go to considerable bother to do the checking. Consequently, testing is delayed as long as possible. In some cases, the instruments are so obviously wrong that they are ignored and from that time on are never used; they deteriorate, become useless and are therefore worthless. It is impossible to state how often instruments should be checked and calibrated if necessary, because the length of time between tests depends upon the class of instrument, the importance of its indications and the type of service to which it is subjected.

However, there are certain things to be borne in mind—and which in too many instances are overlooked. In many plants, checking the electrical instruments is not only a difficult job but a very dangerous one. Instrument space has been left between high-tension wiring and instrument wiring to permit men to handle the job safely and accurately. For the important instruments, an instrument panel is more than justified, so that a duplicate set of terminals enables the calibrating instruments to be operated, in this way enabling the instrument to be tested without removal. Where an instrument panel is installed, so that instruments may be calibrated in position, the operation becomes quite simple and matter of routine. Employing the necessary standard instruments necessitates a certain amount of work, of course, but the matter is relatively simple and safe as contrasted with going behind the switchboard, checking up leads, wiring out to make sure that connections are correct; the instrument panel is a good investment.

The boiler room is entirely different, of course, where thermometers, pressure gauges and steam flowmeters have to be checked. Here the problem is entirely different because physical conditions encountered are vastly different. For work of this nature, the chief difficulties are often due to incrustations or swelling so that it is difficult to remove the thermometer bulb, hence most of the effort is directed toward not breaking the thermometer or doing other damage. Too often it will be found that the men who made the original installation have neglected to use wells, so that it is impossible to remove the thermometers without shutting down the equipment. At the time of installation, it is very little trouble to install a thermometer well adjacent to the thermometer installation. It then becomes a very simple matter, of course, to check the accuracy of the thermometer without removing it, by making simultaneous readings with the standard.

The cost of thermometer wells is insignificant; and setting them in the pipes adjacent to the instrument installation is a matter of only a very short time. But they pay for themselves over and over again in convenience, and security by enabling the thermometers to be checked whenever desired. The most satisfactory type of well is the type that can be filled with a high-grade mineral oil and with screw cap so that dirt cannot enter.

It is very desirable, indeed, to check pressure gauges from time to time. Yet, this important task is dispensed with very often because of the trouble of making tests. Every pressure instrument should be provided with a test connection within as few feet as possible of the point of connection of the gauge line with the steam line whose pressure the instrument is measuring. Where considerable distance exists, an error of 10 lb. and more may occur between the indications of the two gauges, hence the importance of having the test gauge as close as possible to the service pressure gauge.

What applies to pressure gauges and electrical instruments applies with equal force but in slightly modified form to steam flowmeters, CO_2 recorders and such other instruments. The time to take care of these details, so small in contrast with the installation, but so big when it comes to maintenance, is at the time of the original installation.

Where adequate facilities are provided for calibrating, checking and replacing meters of all sorts, the routine testing becomes a simple matter. It provides relaxation from the ordinary day's work. It can be performed with minimum trouble, risk and bother. This means that instead of being shirked and postponed as long as possible, that a schedule can be drawn up so that each class of instrument will receive a square deal.

If a survey could be made, it would be surprising how many instruments are "off." Pressure gauges are read incorrectly so that thermal efficiencies and capacities are suffering. Efficiency is being reduced and the cost of production increased. So give this matter some thought, particularly on all new installation work. There are few plants that could not with advantage work up a definite instrument checking schedule while formulating a policy for testing and calibrating that will enable this work to receive the attention and consideration its importance warrants.

How Papier Mache is Made

Various Formulas and Processes

THERE is no satisfactory reference book on the manufacture of papier mâché available in English. There is a book by George Dickinson entitled **English Papier-Mache; Its Origin, Development and Decline,** which is published by the Courier Press, 55 Fleet Street, E. C. 4, London, at 21 shillings, but this book is largely a record of patents that have been taken out in England and one gains from it no knowledge of actual formulas or processes. In a recent issue of a French contemporary, **La Papeterie,** of Paris, a number of formulas are given for the production of papier mâché and of the varnishes or lacquers used to decorate objects of papier mâché.

As its name would indicate, papier mâché was originally composed of paper pulp in combination with various earthy substances of both mineral and vegetable origin, held together by glues of different kinds, including rosin soap. The ingredients making up the mass may consist of china clay, chalk, lime, gypsum, barytes and talc as well as mineral and vegetable coloring substances.

Viscous adhesives are used to form the material into a mass and these may consist of rosin soap, gelatin, casein, starch or corn paste, gum acacia, dextrin, Irish moss, or wax.

To make papier mâché a wet paper pulp is ground up in a mill with mineral earths and an agglutinant of the preferred type, coloring matter being also added. Below is a selection of formulas, or as we should say in the language of the papermaker, furnishes for papier mâché.

1—Take 750 grams of paper pulp, 1,250 grams of china clay which has been moistened with 2½ liters of water; 750 grams of dry casein and mix. The mixture is heated to the boiling point and stirred to make a paste of uniform consistence.

2—Take 3 liters of water, 750 grams of dry pulp, 1 kilo of kaolin and 250 grams of saponified rosin.

3—Take 1 kilo of paper pulp, 5 liters of water, 750 grams of finely pulverized talc, 750 grams of rye meal, and 250 grams of unslaked lime. The paper pulp is cooked in the water with the rye meal and to this the unslaked lime is presumably added; 500 grams of starch is cooked separately in 8 liters of water and the hot solution added to the mixture previously made. The mixture is then stirred vigorously until a smooth paste results. The mixture is allowed to stand for several days in order to permit any excess water to drain off.

4—Take 500 grams of dry paper pulp, 2 liters of saponified rosin, 500 grams of flour and 500 grams of china clay, or ordinary white earth, and 3 to 4 liters of water. These materials are boiled together to form a smooth paste.

5—Take 500 to 1,000 grams of paper pulp, 750 grams of cheese made from milk from which the cream has been removed (equal to 93 grams of casein), 500 grams of saponified rosin, 125 grams of soda ash, the whole being mixed with 2 liters of water. Boil for three-quarters of an hour and mix in the usual way.

6—Take 1 kilo of sulphite pulp, 250 grams of china clay, to which has been added three liters of water, followed by 250 grams of starch which has been previously made into a paste with a liter of water; the mixture is then boiled and rubbed to a mass of uniform consistence. This compound is preferred for the manufacture of architectural ornaments, a strong adhesive being made by soaking 250 grams of glue in 2 liters of water over night and boiling the mixture; casein is prepared by treating 10 parts of dry casein and 1 part of soda ash with 40 parts of water. The addition of 15 per cent of boric acid is recommended as a preservative. Casein is preferred to glue because it combines more readily with the rosin and the resulting cement adheres more tenaciously. It is on account of this that casein and rosin play such an important part in the fabrication of papier mâché.

The papier mâché is molded into different forms according to requirements. The preparation of the plaster of paris molds calls for some care and skill.

Papier Mache Varnishes

Formulas for varnishes or lacquers for papier mâché articles are given as follows:

1—3 parts of shellac, 10 parts of alcohol and 2 parts of lampblack.

2—2 parts of shellac, 2 parts of rosin, 10 parts of alcohol and 3 parts of lampblack.

3—17 parts of shellac, 9 parts of rosin, 8 parts of dragon's blood and 100 parts of spirit of turpentine.

4—10 parts of shellac, 5 parts of gum sandarac, 3 parts of gum mastic and 100 parts of alcohol.

5—10 parts of gum sandarac, 3 parts of gum mastic, 2 parts of heavy turpentine and 50 parts of alcohol; 1 part of safran is used to color 50 parts of alcohol.

6—To make a golden varnish, dissolve 9 parts of shellac and 10 parts of gum gamboge in 50 parts of alcohol.

Pack Fellowships Will Train Forestry Leaders

Eight fellowships for the training of leaders in forestry have been awarded for the year 1930-31 by the Charles Lathrop Pack Forest Education Board, and the board is preparing to receive applications for fellowships for the year 1931-1932. The fellowships already granted cover a wide range of practical and theoretical forestry, including reforestation, management of private forest estates, co-operative marketing of forest products, silvicultural management, and forest pathology.

Six to eight fellowships, with stipends ranging from $500 to $2,500, are available for the coming year. The purpose of the fellowships is to encourage men who have shown unusual intellectual and personal qualities to obtain training that will best equip them for responsible work, either in the general practice of forestry, in the forest industries, in the teaching of forestry, in forest research, or in the development of public forest policy.

Awards will be made to gifted men who demonstrate natural powers of intellectual and personal leadership and who intend to make forestry their life work. Special emphasis will be placed on character, intellect, imagination, initiative, industry, resourcefulness, adaptability, ability to deal with men, ability to assume responsibility, and personal interest in forestry. The fellowships will ordinarily be restricted to men of American or Canadian citizenship.

Applications will be received not later than January 15, 1931. Application forms and detailed announcements can be obtained from Ward Shepard, secretary of the Charles Lathrop Pack Forest Education Board, 1214 Sixteenth St., N. W., Washington, D. C.

Gifford Pinchot Opposes Transfer of Forest Service

Gifford Pinchot, first Chief of the United States Forest Service, and governor-elect of Pennsylvania, strongly opposes any move to transfer the Forest Service and the administration of the National Forests from the Department of Agriculture.

In an article appearing in **American Forests and Forest Life,** the magazine of The American Forestry Association, Mr. Pinchot, who played a big part in bringing the administration of the National Forests under the Department of Agriculture more than 25 years ago, also predicted the dismemberment and dissipation of the National Forests should they ultimately be turned back to the states, along with other public lands.

Mr. Pinchot's concern has been raised over a bill introduced in the 71st Congress by Senator King, of Utah, in which is proposed to abolish the Forest Service, which administers to the National Forests, under the Department of Agriculture, and to place the public forests under the administration of the Secretary of the Interior, who has proposed, according to Mr. Pinchot, turning certain areas of the public domain and the National Forests over to the states.

"Without question," said Mr. Pinchot, "if the National Forests were to be turned over to the states along with certain grazing lands of the public domain, as proposed by the present Secretary of Interior in a speech at Boise, Idaho, it would mean their dismemberment and dissipation. The Department of Interior never has and never will be a real department of conservation. It has been the government real estate agent, bent always on getting the public lands into private ownership.

ADVERTISING PAGES REMOVED

Practical Helps for the Mill Man

Shot Gun Recoil Absorber

ROTARY lime kilns, converting lime sludge of the soda or sulphate recovery processes into lime give trouble sometimes from stoppage of the material in its travel through a kiln. Experience has taught those associated with this branch of the industry, that an easy way to handle the prob-

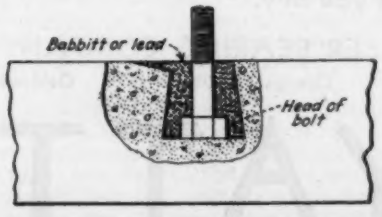
lem is to "shoot down" the interior of the kiln. An ordinary shot gun is commonly used for this purpose. The extreme heat in the vicinity of a kiln together with the number of shots that must be fired to break down such a mass makes the "shooting down" operation a rather unpleasant task.

A home-made device for absorbing the recoil of a shot gun used for this purpose has been suggested by Oxy-Acetylene Tips. This mount, as illustrated, has a spring which absorbs the recoil, and a bipod-H beam frame with an adjustable hook. The hook may be used for transporting the device or it may serve as a third leg for steadying the aim of the gunner.

Such a device can be easily fabricated by a welder from scrap metal about the plant, and adds much to the comfort of the workmen.

Anchoring Machines in Concrete Floor

AN interesting method for anchoring machinery to a concrete floor was described by R. M. Thomas in the August 1930 issue of **Industrial Engineering**. The location of the

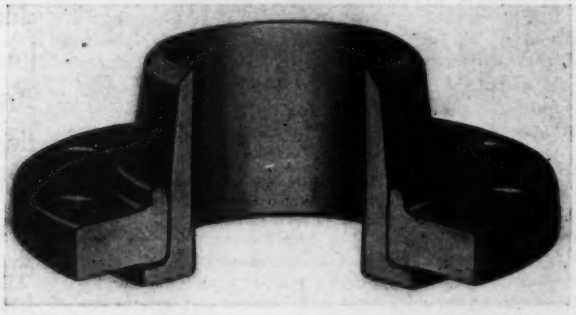


bed plate or leg bolt holes of the machine to be anchored is first denoted on the floor. The holes are then drilled into the concrete at these points with the holes tapering outward at the bottom and with a short gutter in the floor leading into each hole. Each bolt is then set in position with the head down and with the other end extending through the bed plate or leg of the machine to be set. Following this operation, the nuts are run up almost to their holding position on the bolts, and the bed plate or legs approximately aligned. Lead or babbitt should then be poured into the gutter of each hole until the holes are filled. The shape of the holes makes it unnecessary to pack the lead or babbitt. As soon as the lead or babbitt has been poured, the machine should be carefully aligned and then bolted down securely. Perhaps, it should be emphasized that caution should be exercised in pouring lead or babbitt. Be sure that the holes into which the molten metal is poured are dry.

Pour lead or babbitt in gutter to left of bolt until hole is filled to level of floor.

Merco Nordstrom Develops New Flange

A new type of flanged joint has been developed for use in connection with welded pipe lines where such a joint is required for the insertion of valves and fittings for the taking off of outlets. It is known as the "Merco" swivel flange and



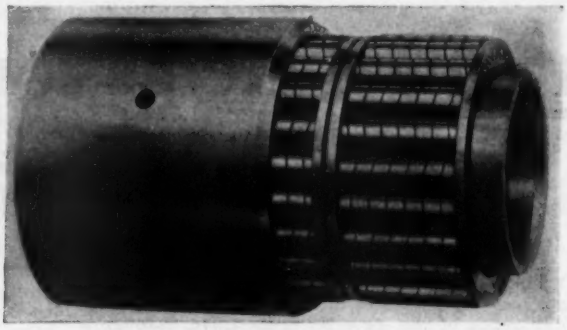
is a unique device possessing fully the inherent flexibility of the Vanstone type of flange, plus the strength of an ordinary butt welded flange, according to the manufacturers. It consists of a drop forged steel flange, fitted to a drop forge tapered nipple on which the flange may be rotated, permitting alignment of bolts, etc. The tapered nipple is forged from a solid steel billet and the finished product incorporates a thickness much greater than pipe at the base of the nipple where highest stress occurs.

Full details of this new product are to be released in the near future by the Merco Nordstrom Valve Co., with headquarters at 343 Sansome St., San Francisco.

A New Medium Price Belt Conveyor

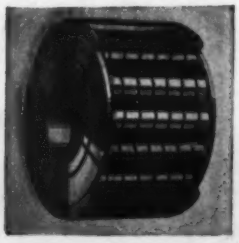
A new roller bearing belt conveyor carrier, known as the "Pacific Type," has just been developed by the Stephens-Adamson Mfg. Co. of Aurora, Ill. Timken bearings are used throughout and the carrier is featured for use wherever a high grade conveyor of medium price is wanted. The Pacific carrier is built in sizes for conveyor belts from 18 to 48 inches wide. The manufacturer states that clearance dimensions such as backing, bolt spacing and overall dimensions are practically the same as other types of carriers of their manufacture.

A. G. Daugherty, well-known sales engineer, for many years with S. Morgan Smith Co., York, Pa., and recently with the Dayton Beater & Hoist Co., Dayton, Ohio, has joined the forces of the Midwest-Fulton Machine Co., Dayton, Ohio.



Hyatt "D" Series bearing with dual roller assemblies and inner race partly withdrawn.

All along the line from haul-up to winder, from log to finished paper . . . Hyatts prevent production delays, lower production costs



Hyatt "W" or Wide Series bearing with section of outer roll cut away to show roller assembly.

HYATT Roller Bearings are heavy duty precision made bearings of the most durable chrome nickel molybdenum alloy known. Due to their distinctive roller construction they possess great capacity for continuous service and are proof against sudden failure from shock or impact loads. They are separable for easy assembly. They do not require adjustment to compensate for wear or for high temperature.

Thoroughly proved in service under railroad passenger cars, in steel mill and in many other applications requiring superior stamina, Hyatts protect pulp and paper mill equipment to which they are applied, with profit to the maker and to the user. Use them in the machines you build, specify them for the equipment you buy.

HYATT ROLLER BEARING COMPANY

Newark Detroit Chicago Pittsburgh Oakland

HYATT

ROLLER BEARINGS

PRODUCT OF GENERAL MOTORS

The Month at Washington

THE reorganized Tariff Commission has settled down to work under its broadened scope and larger powers authorized by the Smoot-Hawley tariff act. Under the leadership of Henry P. Fletcher, chairman, the commission is expected to gain substantial benefit from his diplomatic experience, and familiarity with trade conditions, the good will, or illwill of the various nations of the world. The most recent change is the appointment of Dr. E. Dana Durand, who on November 1 took charge of the statistical work of the body. His training and experience will be helpful in the investigations carried on by the commission. He was formerly chief of the division of Statistics and Research, where since 1924, he has been in close touch with the industries of the country. His recent book on "The Industry and Commerce of the United States" is a standard work of great value to business men.

The recent appointment of Leland Harrison, to be in charge of international relations work on the staff of the Tariff Commission and the assignment of John F. Bethune, formerly secretary of the commission to establish foreign headquarters in Brussels, early next year, as a good will diplomat bring two experienced men to these important posts, promising results to American business. Harrison has had a world-wide experience, was assistant Secretary of State and recently minister to Uruguay.

I. C. C. Decisions—The Interstate Commerce Commission in a decision of cases brought by **Liberty Weekly** magazine, and the National Publishers Association, against a large number of railroads, has held: first, that "ratings applicable to magazines or periodicals, in carloads, and less-than-carloads, in the official, southern, and western classifications found unreasonable, and reasonable ratings prescribed," and second, "refusal of defendants to transport the **Liberty Weekly** magazine in baggage-car service found not unreasonable or otherwise unlawful."

Holding that the rate on paper drinking cups in carloads from Worcester, Mass., to New York was unreasonable, the Commission ordered the Boston and Maine Railroad and the New York Central Railroad Company to pay to the National Consumers Paper Corporation, of New York, the sum of $33.67, with interest thereon at the rate of six per cent from July 1, 1926, as reparation.

The Commission in reconsidering cases of the Hamersley Manufacturing Company vs. Erie Railroad Company; Reading Company; The B. and O. R. R. Co.; The Central R. R. Co. of New Jersey; The Lehigh and Hudson River Ry. Co. and Hoboken Manufacturers R. R. Co., and the case of Clifton Paper Mills vs. New York, Susquehanna and Western R. R. Co., Erie R. R. Co., Bush Terminal R. R. Co., and the Pennsylvania R. R. Co. reversed its previous finding of November 11, 1929, that the rate on imported wood pulp, in carloads from New York, N. Y., to Garfield, and Passaic-Dundee, N. J., was unreasonable prior to October 11, 1927, and that reparation was due. The reconsideration was taken at request of the railroads, and the commission found that the rate in question had been reasonable, prior to October 1927.

Paper Notes of Interest—Production by German pulp and paper industries during the first half of the current year held up well as compared with that in the corresponding period in 1929, according to Trade Commissioner William T. Daugherty, of the U. S. Department of Commerce, stationed at Berlin. The industries, by and large, however, he said, have not escaped the economic depression affecting German trade and industry as a whole, and it is estimated that except a few larger enterprises, the paper mills operated at only from 75 to 85 per cent capacity, while the output dropped from 1,146,400 tons (short ton of 2,000 pounds) during the first six months of 1929 to 1,115,500 tons in the corresponding period of 1930.

The British paper industry, as in other countries is suffering from the world-wide falling off in the consumption of paper, and according to authorities in the industry, the outlook is not encouraging for the immediate future. The demand from domestic sources has been below normal since the first of the year, it is said, and has been accompanied during recent months by a slight downward trend in exports.

Canada reports a curtailment in newsprint production. Paper mills in the Netherlands are operating below capacity and are filling all orders immediately; the outlook of the industry is unsatisfactory. Exports of pulp and paper from Finland during the first eight months of the current year were generally above those of the corresponding period in 1929. Excepting for groundwood, shipments of which increased by 25 per cent during the first eight months of 1930 compared with the same period last year, Norwegian pulp and paper exports have been generally lower.

A new cardboard game is on the market in Germany called "Folding Form Building." It consists of ten squares of cardboard, which are supplied in different colors as wanted. They are connected by fitting the sections together so that they interlock. In search for new uses to which paper and cardboard can be put this idea deserves recognition.

Employment and Pay-Rolls—The Bureau of Labor Statistics of the U. S. Department of Labor reports that changes in employment and pay-roll totals in September as compared with August, from 13 industrial groups show an increase in employment in September of 1 per cent and an increase of 1.4 per cent in pay-roll totals. Excluding manufacturing the remaining 12 groups in September showed a gain in employment of 2.8 per cent and a gain of 2.4 per cent in pay-roll totals; manufacturing industries alone showed a decrease of 0.3 per cent in employment and an increase of 0.4 per cent in pay-roll totals. Per capita earnings in manufacturing industries in September, 1930 were 0.6 per cent greater than August, 1930, and 9.9 per cent smaller than in September, 1929.

Considering the monthly average of 1926 as 100, the following changes were reported by the Bureau of Labor statistics in industries concerning paper:

MANUFACTURING INDUSTRIES	Employment 1929	Employment 1930		Pay-Roll Totals 1929	Pay-Roll Totals 1930	
	Sept.	Aug.	Sept.	Sept.	Aug.	Sept.
Paper and Printing ...	102.9	96.9	95.9	107.7	99.0	98.5
Paper and pulp	96.2	90.0	88.0	98.5	86.3	83.6
Paper boxes	99.0	89.0	90.6	108.0	90.7	93.6
Printing, book and job	105.6	98.3	95.3	108.3	100.5	98.4
Printing, newspapers ..	108.9	106.5	107.5	113.9	109.0	110.8

Postal Announcements—The Post Office Department has just announced air routes from London to the Continent, which now will carry by air mail articles mailed from the United States. Special attention is called to the fact that the air fee is in addition to the ordinary postage, special-delivery, or registration fee. Mail matter intended for dispatch by this air mail service should have affixed blue labels reading "Par Avion (by air mail)", and be marked in addition, "From London" or should be marked in the upper left-hand corner of the envelopes or covers, "Par Avion (by air mail) from London". All mail articles for this service will be dispatched to New York for onward transmission from that exchange post office.

Effective November 1, the weight limit applicable to parcel-post packages exchanged between the United States and Lithuania (including Memel Territory) was increased from 22 to 44 pounds.

AIR TESTS FOR LEAKAGE • HYDROSTATIC TESTS FOR RUPTURE • • •

• • • And the hydrostatic Test is *double* the cold working pressure

Every Nordstrom Valve is given air tests for leakage and a hydrostatic test for rupture.

There are two air tests—the first at 75 pounds air pressure with valve bodies submerged under water. This detects any porosity of the body castings before complete machining takes place. The second air test is made with air at 150 to 250 pounds pressure, depending on valve rating, and is applied to valves completely submerged under water. This test indicates any leakage when the valve is assembled.

The hydrostatic test proves valve resistance to rupture primarily, and in every case this test is **double the cold working pressure.** This test ranges up to 6,000 pounds pressure.

These rigid tests, combined with the patented "Sealdport" method of lubrication adopted for Nordstrom Valves, assures the most efficient valve service under all conditions.

Nordstrom Valve with "Sealdport" lubrication. Resists leaks and sticking. A distinct advance in the art of making lubricated valves.

In the Nordstrom method of "Sealdport" lubrication the lubricant ducts are so arranged as to furnish an unbroken ring of "Merco" Lubricant around both inlet and outlet ports of the valve when it is in closed position, maintaining at all times continuity between the lubricant chamber in the base of the valve and the supply of lubricant in the plug shank. This ingenious method of lubrication is secured by four vertical grooves in the body of the valve and four horizontal grooves in the plug of the valve, located above and below the port of the plug in such a manner that contact is always made between two vertical ducts while the plug is being turned and forming complete rings of lubricant around both inlet and outlet ports when the valve is in the shut-off position.

A distinct advantage of the "Sealdport" method of lubrication is that, if at any time a leak should occur through a properly adjusted valve, the addition of a small amount of "Merco" Lubricant will immediately seal off the leakage. In addition to the prevention of leaks, "Sealdport" lubrication frees the plug should it ever be tight.

Ask for Latest Catalog

"Merco" Lubricants should always be used in Nordstrom Valves. A complete line of special lubricants for every valve service. Complete information on request.

"Merco" Pipe Compound is a metallic lead product for sealing screw thread or gasketed joints. Will not corrode or freeze the joint. Easily applied.

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Houston - Petroleum Bldg.
Los Angeles - 816 So. San Pedro St.
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New York - 11 W. 42nd St.
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Hamilton - R. W. Hendry Co., Ltd., Fort & Queen Streets
Manila - E. W. Bunn, c/o J. A. Manzo Co., Paper Specialty Bldg.
Philadelphia - Brown, Wilcox & Company, 1800 Arch St.
Portland - Archer C. Herbert, 112 Durham Street
Salt Lake City - National Equipment Co., 161 West 2nd South St.
Texas - S.V. Heney & Company, 216 N. Brady Street

Factories in U. S. Oakland, Calif. and Belleville, N. J.
Canada - Peacock Bros., Ltd., Montreal, Toronto, Winnipeg, Vancouver. (Also Sydney, N.S.)
England - Audley Engineering Co., Ltd., Newport, Monmouthshire.
Buenos Aires, Argentina, - General Electric, Soc. Anon., Victoria 653 Esq. Pere.

NORDSTROM VALVES

❖ NORTHERN NEW YORK ❖

Forestry Association Meets

John N. Carlisle, Watertown, president of the Northern New York Utilities, Inc., was elected president of the Empire State Forest Products Association to succeed George W. Sisson of Potsdam at the 25th annual meeting of the association held in October at Watertown. Other officers elected were: Thomas H. Stirling, Mechanicsville, vice-president; W. Clyde Sykes, Conifer, treasurer, and Professor A. B. Recknagel, Albany, secretary. F. B. Willson, Glens Falls and A. A. Low, Sabaltis, were elected to the board of directors to succeed John N. Hinman, Glens Falls, and E. A. Sterling, New York, respectively.

G. C. Pichie, chief forester of the Province of Quebec, was one of the speakers at the meeting. Mr. Pichie, along with other prominent forestry experts, urged intensive reforestation. Clarence L. Fisher of Lyons Falls, chairman of the special committee on forest fire prevention, reported that fires caused by hunters, fishermen and campers have resulted in a greater proportionate loss in the fire districts of the state this year than in 1929. Mr. Fisher said that publicity and education must be the important factors in reducing the fire losses in the future and he proposed a campaign next spring which would include the distribution of an attractive and useful article made of Adirondack wood which would be suitably inscribed with a fire warning message.

John C. McDonald, of Watertown, paper mill expert, has returned from Camas, Wash., where he directed installation of a converting plant in a Crown-Zellerbach mill. Mr. McDonald, who has been affiliated with the Crown-Zellerbach mill at Carthage, since October, 1929, said business men in the West were looking forward to a return to normal business conditions in the near future.

M. S. Nakodzub, vice-president of the Amtorg Trading Co., recently conferred with officials of the Racquette River Paper Co. at Potsdam relative to the sale of Russian pulpwood. Much Russian wood has been used at the Potsdam plant.

The large grounds of the National Paper Products Co., mill at Carthage of which E. B. Eddy is manager have been graded and seeded, thus greatly improving their appearance. The Carthage Chamber of Commerce has passed a resolution extending thanks to Mr. Eddy for beautifying the mill grounds.

Unity Settlement Progressing

Unity Paper Mills, Inc., of Potsdam are well on the road to a settlement with creditors, according to papers filed in United States court at Utica. Bernard Wade, co-receiver, in an application to Judge Frederick H. Bryant for postponement of adjudication in bankruptcy, set forth that 90 per cent of the second mortgage creditors and 60 per cent of the general creditors have consented to accept a percentage of their claims.

Work is now progressing satisfactorily toward obtaining consent of more of the creditors, said the receiver, who stated that a sufficient amount of money has been pledged to make the payments suggested. The percentage planned to pay the mortgage holders and creditors was not stated in the papers. If the composition settlement goes through the company will be free from further claims except the first mortgage. When the consent of more creditors has been received the proposed settlement will be submitted to the court for approval, it was stated. As a few more weeks will be required to bring this about, Judge Bryant, on motion of Frank L. Cubley, representing the receiver, postponed the bankruptcy adjudication until Dec. 2. In the meantime the mills are being successfully operated, according to the receiver.

Oswegatchie Mills to Be Sold

Through Attorneys Cobb, Cosgrove, Harter & Wright of Watertown, the Watertown National Bank on October 24 started suit to foreclose the mortgage on the property of the Oswegatchie Paper Co. for the purpose of satisfying a first lien upon the property of about $40,000 advanced by the bank as trustee in payment of taxes, insurance, interest, etc. The foreclosure is also for the purpose of financially satisfying the holders of $598,000 of first mortgage bonds and $899,300 of first and refunding mortgage bonds which in effect are under a second mortgage on the property. The bank is the mortgage trustee.

The two mills, located at Natural Dam and at Emeryville on the Oswegatchie river near Gouverneur, 5,500 horsepower, and 20,000 acres of timberlands, mostly in Lewis county but including some in Herkimer and St. Lawrence counties, are estimated at $3,000,000 present values. These mills of the Oswegatchie company are virtually modern. The present owners acquired the sites, power and timberlands from the owners of the Aldrich Paper Co. in 1923. Some years before the paper mill at Natural Dam had burned and an issue of $900,000 of bonds was offered, secured by a first mortgage, to provide for the construction and equipment of the new mill in which was installed a Bagley & Sewall paper machine. The groundwood mill of the company is located at Emeryville. The company ran an issue of $1,500,000 of first and refunding mortgage bonds in 1927, the purpose of which was to take up the $900,000 of first mortgage bonds and to leave a surplus for working capital, etc. Holders of but $300,000 of the first mortgage bonds surrendered them for first and refunding mortgage bonds. For a few years the company enjoyed good business but two years ago when its market weakened to such an extent that it could not operate at a profit the plant was shut down to eliminate overhead. It has never been reopened and no interest has been paid on the mortgage since August, 1927.

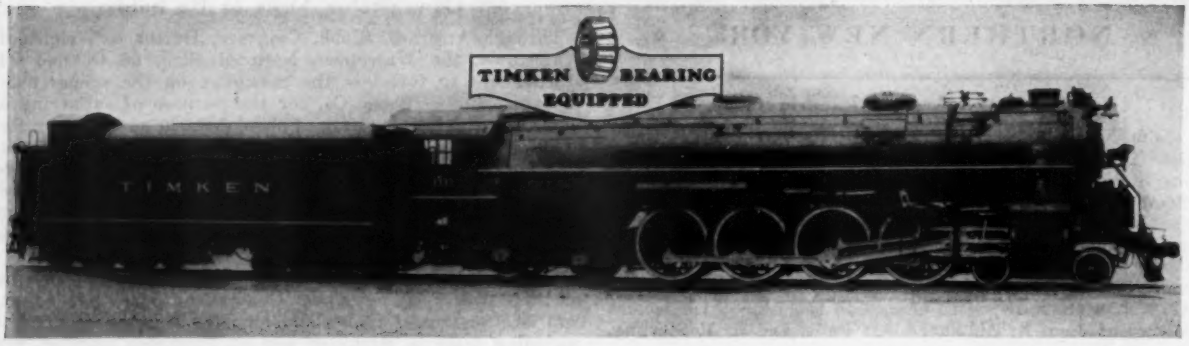
The men who organized the Oswegatchie Co. were formerly owners of the West End Paper Co. of Carthage, controlled until the time of its sale to the National Paper Products Co. by the Sterling and Wardwell families. Samuel B. Wardwell is president and general manager of the Oswegatchie Co. and large holdings of the bonds of this company are in the hands of Nelson R. Caswell, Gouverneur, and Attorney Sam Child, Watertown. The mill had a capacity of about 50 tons of paper in 24 hours. A time for sale of the property by auction to the highest bidder will be fixed after judgment of foreclosure is rendered. The proceeds will be used to pay the expense of litigation, satisfy the lien held by the plaintiff bank, and the remainder will be turned over to the bondholders. In the event there is a residue it will go to any creditors the company may have.

Fillmore Utley Leaves Regal Paper Co.

Fillmore G. Utley, president of the Regal Paper Co. of Pulaski, announced on Oct. 22 that he had sold his interests in the concern to Earle H. Benson, treasurer and founder of the company. The transfer is effective Jan. 1, 1931. Mr. Utley who is a director of the Pulaski National Bank was made president of the company in 1921.

The Regal Paper Co. is one of the largest industries at Pulaski. It was established in 1911 by Mr. Benson. It has gradually been expanded and today occupies a factory with 120,000 square feet of floor space. A year ago the company purchased considerable property near its plant for the purpose of further expansion. The company has distributing warehouses in San Francisco, Chicago, Dallas, Pittsburgh, New York and Boston. Its products which are nationally advertised include Texlin toilet paper, Pic Wax paper and paper napkins.

Stockholders of the Stebbins Engineering & Manufacturing Co., Watertown, recently elected the following directors: August F. Richter, Carl F. Richter, A. D. Merrill, E. F. Tucker and G. D. Jenssen. August F. Richter is president of the company.



And Now—The World's First Anti-Friction Locomotive Timken Bearing Equipped

Another tough job for Timken Bearings—but Timkens are licking it just as they have licked Industry's toughest jobs in all types of machinery!

For the first time in the history of world railroading, a locomotive has been placed on a full anti-friction basis, and Timken is proud to have the privilege of pioneering this great forward step in the interests of American railroad advancement.

The Timken locomotive pictured above was designed and built for the sole purpose of demonstrating the advantages of roller bearings as applied to motive power.

It has been placed in service on a strictly non-revenue basis, and is being loaned without charge to railroad companies desiring to determine its operating characteristics under their own conditions.

Every wheel turns on Timken Tapered Roller Bearings—front truck wheels, driving wheels, trailer truck wheels and tender truck wheels.

There are 32 Timken bearings in the wheels and booster, and in addition Timkens are used in the speed driver of the valve pilot and in the train control governor.

Another revolutionary feature of this locomotive made possible by the higher rotative driving wheel speeds secured through the use of Timken Bearings, is the fact that it can handle fast freight and passenger trains with equal efficiency, having the necessary power and speed for both purposes.

All of the Timken benefits which users of Timken-equipped industrial machinery have enjoyed for years are reflected in the Timken locomotive, namely, friction elimination, lubrication economy, power conservation, radial, thrust and combined load capacity, extended machine life—modern anti-friction necessities that only Timken Bearings can provide. Don't you want these same enduring economies in every piece of equipment you operate? The Timken Roller Bearing Co., Canton, Ohio.

TIMKEN *Tapered Roller* **BEARINGS**

E. W. Sanger Goes with Bagley & Sewall

E. W. Sanger has been appointed chief engineer of the Bagley & Sewall Co. of Watertown, manufacturers of fourdrinier paper machines, pulp screens, pumps, etc. Mr. Sanger has already assumed his duties, succeeding Edward E. Martin who died recently.

Mr. Sanger is a native of Stamford, Conn., and a graduate of Cornell University. After his graduation he was for two years associated with the Westinghouse Electric & Manufacturing Co., resigning to accept a position as superintendent of shops of the Norwalk Iron Works, Norwalk, Conn. After four years with that company he became chief engineer of the Minton Dryer Co., of Greenwich, Conn., and has been associated with that company for the past ten years. The Bagley & Sewall Co. is one of the few paper machine companies licensed to incorporate the Minton dryers in their paper machines.

Richard Gray of Watertown recently returned from Belahkna, Russia, where he has been erecting a huge Bagley & Sewall paper machine in a mill of the Volga River Paper Co. Mr. Gray has been in Russia since July, 1929.

❖ MICHIGAN ❖

Kalbfleisch Host to Technologists

On Wednesday evening, October 8, the Kalbfleisch Corporation was host to the Paper Technologists Club of Kalamazoo.

Max Bardeen, president of the club, called first on Mr. Heinmuller, chemist at the Kalamazoo Division of the Kalbfleisch Company, who spoke on "Acids, Their Manufacture and Uses." The manufacture of sulphuric acid was first considered because it enters quite largely into the manufacture of other acids. Both the tower and chamber processes were discussed by Heinmuller and those present.

The use of sulphuric acid in the production of both hydrochloric and nitric acids were next considered and the discussion was rather lively, indicating an interest of the members in related industries. Production of these acids by other methods, such as burning of hydrogen in an atmosphere of chlorine for hydrochloric acid and the fixation of nitrogen from air in making nitric acid were brought out and discussed briefly, but the basis of the main talk was on the methods in use by the Kalbfleisch Corporation.

The use of nitric acid in photo engraving was described by Mr. Heinmuller and the method of making engravings was illustrated by a pamphlet from the Cresent Engraving Company, of Kalamazoo. Considerable discussion and interest was evoked by this subject.

Following Mr. Heinmuller's discourse, Henry Heller, of the Paper Makers Chemical Corporation, presented a short paper on "The Value and Use of a Reference Library." Mr. Heller said that the value was quite generally conceded and proceeded to explain ways and means for making the references more valuable and more attainable.

The Kalamazoo Public Library had requested the co-operation of the club in helping them bring their paper reference library up-to-date and maintaining it there.

With the above idea in mind the discussion on Mr. Heller's paper was quite enthusiastic and instructive. The matter culminated in the appointment of a library committee, consisting of V. G. Heinmuller, Elbert Milham, and Carl Schneider, to review the present status of the library books and make report to the club which will, in turn, pass on them and a report made recommendations to the library. New books coming out are to be reviewed by this committee before any action is taken to recommend them to the library.

It is hoped in the above manner to have a very up-to-date and complete public reference library for the use of all papermakers in this district.

Following the business session, the Kalbfleisch Corporation furnished refreshments and the meeting adjourned in good spirits.

Cost and Technical Men Entertained with Travelogues

Thomas W. Peck, secretary of the Kalamazoo Vegetable Parchment Co., was the first speaker at the regular monthly meeting of the Kalamazoo Cost and Technical Association held at the Columbia Hotel, Wednesday evening October 29.

Mr. Peck spoke on "Valuation of Good Will." The value of good will in the sale of a business or the merger of two or more companies is a matter of great importance and often hard to establish satisfactorily to all concerned.

There are several methods of figuring good will value which Mr. Peck explained quite carefully and clearly after his opening remarks in which he referred to several court decisions bearing of good will litigation. Probably the fairest and most universally used method is based on the excess profits of the concern. A fair profit percentage is established which, of course, will differ with various types of business but usually is between 6 and 8 per cent. The actual profit made above this accepted per cent is the good will value for one year. The total value of the good will is then obtained by multiplying this amount by a predetermined number of years which is again dependent on the nature of the business. It is a question of how long the good will of the old company will carry over or how soon it will be replaced by the newly made good will of the new concern.

Another method sometimes used is based on the net assets of the business and is probably not as fair as the first method because a small company may do a much larger business in proportion to its capital or may actually do a larger business than the larger concern therefore in case of sale or merger is worth more proportionately than the larger company.

The third method which is quite fair and is used considerably is a combination of the two first ones.

The paper elicited considerable discussion which brought out the point that patent rights, coprights and formulae are not usually considered of any value as good will. The difference between good will and good effort was broached. Good effort on the part of individuals will build up good will for the company and consequently bring in more business while some individuals with no effort at all may produce considerable business because of the good will of the company.

The second speaker introduced by President Whittington was W. E. Kidder, president of the Kalamazoo Sled Company and closely connected with most of the paper mills in Kalamazoo. Mr. Kidder has traveled extensively over the world and hunted wild game, large and small but not with a gun. For over 50 years Mr. Kidder has been an ardent amateur photographer and has done much to further the art of photography both moving and still.

Mr. Kidder entertained the members with incidents from his many trips and experiences and illustrated some of them with three reels of pictures.

The first reel was photographed in the northern wilds of Canada in woods where no gun has been fired and views were exhibited of Moose and Deer taken at ranges as close as 15 feet and without the use of a blind. Another reel was of life in Africa, the most intriguing portion being that taken of a Zulu dance in native dress. While taking this picture a rainstorm came on and broke up the dance also preventing further photography. The local members were disappointed that it had to be cut so short. The third picture was a specially prepared one entitled "The Fishing Fable" and contained considerable trick photography, worked out by Mr. Kidder and proved amusing and pleasing to those present.

The next meeting of the club is to be jointly with the superintendents in November.

Bryant Paper Co. Opens Sales Offices

For many years, the Bryant Paper Co., Kalamazoo, Mich., has marketed a considerable part of its product through the Seaman Paper Co., Chicago, and through this agency has developed many pleasant and profitable business affiliations.

The Bryant company now announces that it is convinced owing to the change in the trend of business conditions, that the control of its own sales is essential as this will enable

If you want to turn out more work put the G·T·M· on the job

The G.T.M.—Goodyear Technical Man—helps turn out more finished jobs. And at lower cost. He studies all work conditions. He spots reasons for delay or expense. He applies a sound remedy. Whether it is movement of goods, engine-power, air, or liquids, by accurate specification of Mechanical Rubber Goods to need he insures an efficient operation. His wide experience helps you to smoother, faster production and profit.

Throughout the paper industry are G.T.M.-specified economies. He is an expert in the field. He has applied Goodyear Compass Endless (Cord) and Goodyear Emerald Cord Multiple V Belting to beater drives with outstanding and uniform success. He has installed Goodyear Conveyor Belting for movement of wood chips and stoker coal. He has furnished Goodyear Sanitary Hose – a *soft-nozzled* hose – for wash-up, and pounds of Goodyear Packing to conserve your power. The G.T.M. can bring new profit to you now.

. . .

For the help the G.T.M. can be on your job, just write to Goodyear, Akron, Ohio, or Los Angeles, California.

THE GREATEST NAME IN RUBBER

GOODYEAR

BELTS MOLDED GOODS HOSE PACKING

it to share with its customers the advantages that may accrue from the closer contact.

The company's policy is designed to protect the established paper merchant and it intends to promote its sales in a manner that will result to the greatest good for the industry from the standpoint of both the producer and consumer.

The Bryant company has opened a New York office at 19 East 47th Street and an office in the Daily News Building, Chicago, which will bring it in prompt and frequent contact with the trade. During the past several years, the company has expended $4,000,000 in perfecting its equipment and is now in a favorable position to furnish almost any quantity or quality of coated book, lithograph and lightweight printing papers.

Ohio Tablet Moves Plant to Kalamazoo

The West Carrolton, Ohio, unit of the Western Tablet and Stationery Corporation has been dismantled and the machinery and equipment moved to Kalamazoo, where they are to be installed in a new building to be erected as an addition to the Kalamazoo Stationery Company, a unit of the corporation.

As a temporary arrangement, the equipment will be set up in the present buildings, however the new two-story and basement building which will go up early next spring, will provide 90,000 square feet of floor space. Two floors will house the tablet department and the basement will be outfitted for a modern cafeteria, also rest rooms and smoking rooms.

The removal of the Ohio unit to Kalamazoo is a case of consolidation of operations of a similar character under a single management. J. C. Leindecker, who has been manager of the West Carrolton plant, will become sales manager of the consolidated units in Kalamazoo. J. H. Vincent is vice-president and manager in Kalamazoo.

Michigan Superintendents Elect Officers

At the first meeting of the 1930-31 season held Thursday evening October 16, the Michigan Division of the Pulp & Paper Mill Superintendents Association reelected the old officers for another year.

This was a compliment well deserved by the men in office, who have worked together to give the club some very interesting and instructive programs during the past year.

The officers are: Chairman, Wm. H. Sievert, Michigan Carton Co.; first vice-chairman, Walter Crawford, Sutherland Paper Co.; second vice-chairman, John H. Weimer, Lee Paper Co.; sec'y-treas., George Pountain, Bryant Paper Co.

Cal Berry, chief engineer of the Bryant Paper Co., presented a paper on "Drying" in which he discussed efficient maintenance of temperature in the dryer and the removal of saturated air from the surface of the dryer and sheet after moisture had been evaporated. The insulating effect of a film of water on the inside of the dryer was explained and even though the water is the same temperature as the steam, it will not dry paper because the water holds its heat while steam will give it up rapidly.

Oil in the exhaust steam from engines can cause considerable trouble, especially the heavy, steam distilled oils which contain tarry matter and paraffins. Mr. Berry stated that even though the filtered oils cost more per gallon, they are cheaper to use because of smaller quantities necessary in the engine, and consequently, less carried over in the exhaust and what is carried over is far less troublesome than the tarry oils.

As to the removal of air from the dryer sections, Mr. Berry mentioned the various hooding methods and blowers on the front side, also exhausting pipes placed between the dryers, but stressed most on the Minton Vacuum Dryer system.

The thermal efficiency of the open dryer is approximately 30 per cent or three pounds of steam per pound of paper while that of the Minton system is claimed to be 92 per cent or about 1.1 pounds of steam to the pound of paper.

The mentioning of the Minton dryer brought out considerable discussion relative to the effect on sizing. The vacuum dryer is working very well on newsprint which is an unsized sheet, but there was some question as to whether or not the lower temperature would detract from the sizing properties of bonds and writings. There seemed to be a general lack of understanding of the exact operation of the Minton Dryer and it was suggested that, as a matter of information, a representative of the company should be asked to speak before the club sometime in the future.

On invitation of the Paper Technologists Club, extended through Frank Whittington, it was decided to meet jointly with the Technologists and Cost Accountants in November.

❖ WISCONSIN ❖

Industry Remains Stable

Activities of paper mills in Wisconsin during the last month have been largely routine, with sales organizations waging energetic campaigns to keep up the volume of orders. Opening up of the fall school and business season has stimulated demand, and it is believed that improvement will be noted each month from now on.

Stability of the paper industry during the business depression is emphasized in a report of the Wisconsin Industrial Commission for the year ending Sept. 30, 1930. While some industries were reducing employment as much as 35 per cent, and wages as much as 41 per cent, the paper industry remained almost on a normal basis. Reports from 17 mills showed that total employment was reduced only 3.9 per cent, and aggregate weekly pay-rolls 6.4 per cent. This is the least reduction shown by any Wisconsin industry.

For the first time in a long period, earnings of the Kimberly-Clark Corporation showed a decline, the report for the third quarter of 1930 indicating the influence of the business depression. Net earnings during that period were $589,433 after charges, compared with $812,538 in the same quarter of 1929. This is equal to $1.18 a share on 499,800 shares of common stock, and compares with $1.62 a share last year. Earnings for the first nine months of 1930 are $2.116,833, or $4,23 a share on common stock. In 1929, the earnings for nine months were $2,178,796, or $4.35 a share.

Efforts are being made to resume operations at the Tomahawk Pulp and Paper Co., Tomahawk, Wis., closed since last spring when the company was declared defunct. The Bradley Company, holders of a prior lien, petitioned the court to permit outside interests to take over the mill and a decision is expected soon. A bondholders' committee appointed recently by the First Trust Company, Appleton, Wis., also has been going over the situation with C. B. Pride, president of the old company, and is considering plans for reorganization.

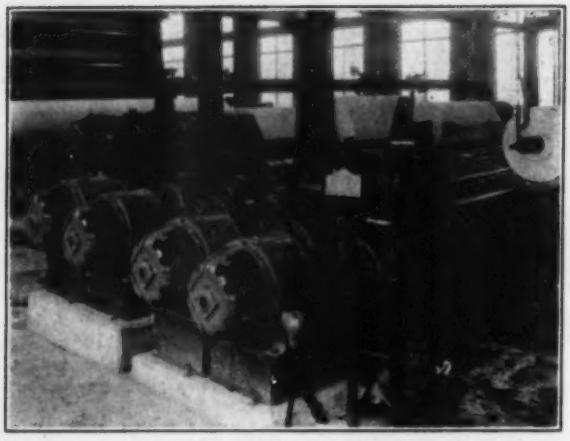
The Ahdawagam Paper Products Co., Wisconsin Rapids, Wis., is nearing the time when operations will be started in its new light carton unit. Building work has been completed on a factory unit 110 by 200 feet and color presses, cutting, creasing, folding and gluing machines will be installed for the making of food and display cartons. The building is ideal for the type of work planned, with extensive lighting and ventilation.

Celebrate Anniversary of Airport

An all-day program and air circus on October 18 marked the second anniversary of the airport that has made the Tri-Cities—Wisconsin Rapids, Nekoosa and Port Edwards—outstanding in the world of aviation. In this short time the Nepco Tri-City airport has developed to a point where it is now a recognized air terminal which has outgrown the expectations of the throngs of visitors and citizens of the three communities who witnessed that dedication program in October, 1928. Hundreds of fliers have found it to be one of the finest in the country.

In two years time since purchasing a tri-motored Ford monoplane, the Nekoosa-Edwards Paper Co., Nekoosa, Wis.,

Simplify Driving Parts, this way

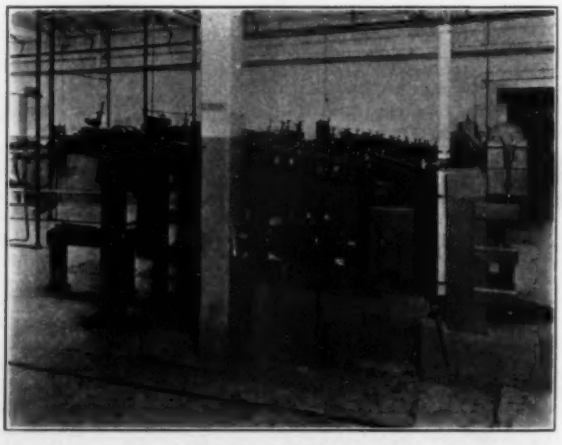


Compare the compactness of the Reliance Electric Drive on this Moore & White Winder with the old belt-drive. Floor space is saved and maintenance lessened by eliminating bothersome short belts, belt shifters, back-gear attachments and clutches. Power is applied where it is wanted and controlled with safety.

The adjustable-speed motor serves a double purpose. It supplies power and provides within itself a simple and efficient method of speed changing. It enables you to get power closer to the place it is to be used with fewer belts, pulleys, gearing and clutches. The elimination of intermediate driving parts saves space and reduces maintenance.

Reliance Engineers have aided in the development of motor-drives which have brought increased production and lower costs on many kinds of paper mill work. Why not make use of this experience which is available for solving similar problems in your mills.

This shows the simplicity of super-calender drives as developed at the plant of the Rhinelander Paper Co. The speed of the 75 hp. Reliance Motor is changed by variable-voltage control to give paper speeds of 50 to 450 f.p.m.



A coating machine at Champion Coated Paper Co. driven by 3 hp. 850-1700 r.p.m. Type T Reliance Motor. The brushes and color mixer are each operated by 2 hp. 1150 r.p.m. Type AA Reliance Induction Motors.

RELIANCE ELECTRIC & ENGINEERING CO., 1058 Ivanhoe Road Cleveland, Ohio

Branches: Birmingham, Boston, Buffalo, Chicago, Cincinnati, Detroit, Milwaukee, New York, Philadelphia, Pittsburgh, St. Louis, Toledo.

Representatives: Denver, Kansas City, Knoxville, Los Angeles, San Francisco, Seattle.

RELIANCE A·C D·C MOTORS

has transported 18,000 persons, flown 1,200 hours and covered 130,000 miles. The chief value has been the company's ability to convey 4,500 paper jobbers and salesmen from various points to the mill, show them first hand how various products are manufactured, entertain them and return them to their homes, generally the same evening. L. M. Alexander, president, and John E. Alexander, vice-president and general manager of the Nekoosa Company became aviation enthusiasts several years ago and assisted in establishing the Tri-City airport at Wisconsin Rapids, Wis.

Organize Lake States T.A.P.P.I.

Organization of the Lake States section of the Technical Association of the Pulp and Paper Industry took place at a meeting Oct. 20 at Menasha, Wis., where a dinner was held for about 100 members of the association. The territory included in the new unit will be Wisconsin, Minnesota and Upper Michigan.

G. K. Hill, technical director of the Gilbert Paper Co., Menasha, was unanimously elected chairman. Dr. Otto Kress, director of the Institute of Paper Chemistry of Lawrence College, Appleton, Wis., was elected vice-chairman; George Hrubesky, of the John Strange Paper Co., Menasha, secretary; T. C. Bentzen, of the Whiting-Plover Paper Co., Stevens Point, Wis., and Allen Abrams, technical director of the Marathon Paper Mills Co., Rothschild, Wis., members of the executive committee of the section.

Members of the program committee are: Dr. Kress; S. D. Wells, of the Nekoosa-Edwards Paper Co.; N. H. Foley, Marathon Paper Mills Co.; C. K. Boyer, Consolidated Water Power and Paper Co.; J. A. Standl, Thilmany Pulp and Paper Co. Mr. Foley also was appointed chairman of the publicity committee. Upon completion of organization, members listened to a paper on "The Use of Chlorine for Slime Prevention," by O. T. Birkeness, of Wallace & Tierman Co.

Wisconsin Cost Meeting

The Wisconsin Cost Division, American Paper and Pulp Association will hold a luncheon meeting at the Milwaukee Athletic Club, Milwaukee, Wis., at 12:30 p. m., on Wednesday, November 12, 1930.

All pulp and paper mills are invited to send representatives to this meeting. Reservations should be forwarded to Miss I. M. Carney, sec'y-treas., c/o Tomahawk Kraft Paper Co., Tomahawk, Wis. A really worth while meeting is being planned, and a representative attendance is assured.

Although a raft containing 17,000 cords of pulpwood was lost to control during a recent storm on Lake Superior, the Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis., had a total loss of only a few hundred cords costing about $1,000 for the entire season. The total amount rafted over to Wisconsin from Canada was 100,000 cords valued at $1,000,000. All work for the season has been completed and the wood has been loaded on cars at Ashland, for shipment to the mill.

Although the Nekoosa-Edwards Paper Co., Nekoosa, is proceeding right along with construction of a large pipe line from Nepco lake to its mill as a means of water supply, the company has started litigation to determine the status of this project. The Wisconsin Railroad Commission has ruled that Nepco lake, a reservoir formed artificially when the Nekoosa dam was built, is a navigable body of water, and therefore comes under the state "recapture" clause and can be taken over by the state in 30 years. The case will be carried to the United States Supreme Court in order to test the validity of such rulings.

Trouble appears to be brewing between the waterpower owners and users of the Fox River Valley and the owners of riparian lands. The Association for the Relief of High Water is attempting to have the control dam at the outlet of Lake Winnebago at Neenah, removed so as to lower the level of the lake and upper rivers and thus prevent flooding. Officials of cities in the valley have started a movement to have the level of Lake Winnebago raised 15 inches at the Neenah dam. The drouth of the past summer made water so scarce the river could not be flushed, causing serious sanitary conditions and the death of thousands of fish. Retention of more water in Lake Winnebago will eliminate such trouble in the future, it is said, and the Government will be asked to act.

Weekly safety meetings will be conducted at Wisconsin Rapids, the same as last year, with the Consolidated Water Power & Paper Co. taking a prominent part. Sessions began Nov. 7 and the schedule of speakers includes: Garrett Burgess, vice-president of King Refractories, Inc., Buffalo, N. Y., subject, "Training Men for the Battle;" Ernest Corn, National Safety Council; C. F. Otto, Employers Mutual Liability Co.; F. A. Lauerman, Chicago; F. M. Wilcox, Wisconsin Industrial Commission, and Elwood T. Bailey, Los Angeles, Calif.

Nekoosa-Edwards Honors President

Recognition of 40 years' service with the Nekoosa-Edwards Paper Co., Nekoosa, was tendered its president, L. M. Alexander, at a banquet given in his honor last month.

Starting as an officer of the John Edwards Paper Co., Oct. 15, 1890, he served in various capacities until his election to the presidency, May 24, 1910. A silver plaque engraved with a brief summary of his career was presented to Mr. Alexander by his son, John Alexander, on behalf of the officers and employees of the company. Reminiscences were related by John Brennen, C. A. Jasperson, Len Smith, Judson G. Rosebush and B. R. Goggins. Four other "old timers" sat at the banquet with Mr. Alexander. They were: George Scott, 59 years; John Brennan, 52 years; Henry Eichstead, 50 years, and Hugh Boles, 41 years.

A regional office of Cooley & Marvin, of Boston, Mass., has been established at Menasha, Wis., with W. H. Nelson of the latter city in charge. Mr. Nelson is president of the newly organized Menasha Paper Corporation, which will start operations soon. Mr. Nelson will conduct audits, appraisals, tax accounting and engineering service.

A. F. Everett, engineer in charge of water power and navigation for the Government at Appleton, has been transferred to Grand Rapids, Mich. His successor is Nelson W. Wightman.

Forestry News

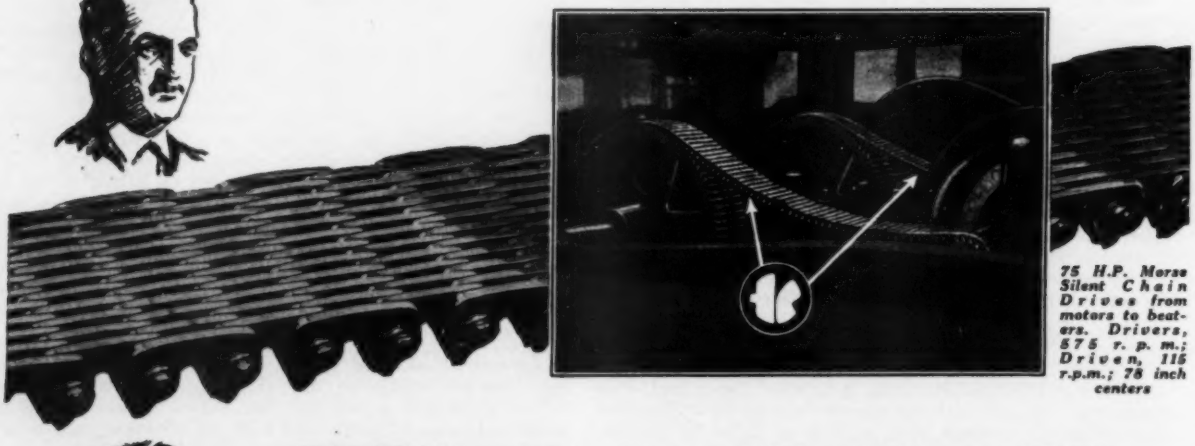
Wisconsin will immediately add 40,000 acres to its forest preservation areas because title to this amount has been obtained by the United States government in the Flambeau forest region. By next spring this will be increased to 100,000, and the ultimate aim is to have the tract contain 125,000 acres.

Another large area is being developed to be known as the Oconto Valley National Forest, embracing 350,000 acres in all. There will be 289,000 acres in Oconto, 40,000 in Langlade, and 22,000 acres in Marinette county. All of the lands under federal control or contemplated will total 1,800,000 acres.

Reforestation development is perhaps the most advanced in the Moquah National Forest, near Washburn. This fall 650,000 seedlings were planted on 1,000 acres, making a total of 2,000 acres now in growth. Norway pine, white pine and spruce were set out.

Oil vaporized by steam is believed to have caused the first explosion of its kind ever known at the Marathon Paper Mills Co., Rothschild, when George Stenson, an employee, was severely burned. Dryers on which he was making repairs had not been in use for 24 hours, yet while he was inspecting a new steam joint with a lighted match, an explosion occurred.

Let the MORSE ENGINEER Analyze Your Present POWER TRANSMISSION



75 H.P. Morse Silent Chain Drives from motors to beaters. Drivers, 575 r. p. m.; Driven, 115 r.p.m.; 78 inch centers

WHEN generated power is wasted through slippage and friction, or when expensive power transmission break downs occur, call in the Morse Engineer for a consultation. His job is to know power transmission methods, and the remedy for wasteful equipment. He will recommend the simplest, easiest, and least costly way to obtain smooth, efficient, profit-making operation.

Many firms who have called in Morse Engineers have found that the slight changes recommended have resulted in a complete reversal of plant conditions. One prominent manufacturer says "Morse Silent Chain Drives were installed on our rolling mills in the summer of 1928, and have operated 10 hours a day since without the slightest trouble".

Call in the Morse Engineer. Send for the free Morse Power Transmission data file which contains interesting facts and figures pertaining to your business.

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Manufacturers of Morse Silent Chain Drives, Flexible Couplings and Chain Speed Reducers

BRANCHES IN PRINCIPAL CITIES

MORSE SILENT CHAIN DRIVES

Visit the Morse Chain Company Exhibit at the Power Show, New York City, December 1-6, 1930, Booth 267-268

Henry Kimberly Babcock

The death of Henry Kimberly Babcock, one of the prominent figures in the paper industry of Wisconsin, occurred suddenly Oct. 27 at his home at Neenah.

Mr. Babcock was vice-president of the Fox River Paper Co., Appleton, Wis. His father was one of the founders of the Kimberly-Clark Corporation, of Neenah, and he himself was associated with the company for a number of years as an officer and director. Mr. Babcock also was a director of the First National Bank, Neenah, Wis., for 25 years, and was prominent in community and church life. He also was a liberal donor to many public buildings and other projects in Neenah. He was 53 years old, and is survived by his widow, three sisters and one brother.

Ephraim Hiram Stoddard

Ephraim Hiram Stoddard, 68, for 18 years a traveling salesman for the Appleton Woolen Mills, passed away October 15, at Fond du Lac.

Born Feb. 4, 1863, at Mishicot, Wis., he moved with his family to Appleton when he was four years old, residing there for many years. Mr. Stoddard moved to Fond du Lac 10 years ago.

Mr. Stoddard is survived by his daughter, Mrs. O. P. McKee, with whom he made his home.

Louis Henry, the oldest employee of the Fort Howard Paper Co., Green Bay, Wis., was killed recently. He fell 20 feet into the open hold of a pulpwood vessel when he tried to dodge a swinging crane.

Logging operations will be started on an extensive scale soon by the Patten Paper Co., Ltd., Appleton, Wis. Large quantities of timber will be taken out of its tracts at Amasa, Mich. A logging railroad 12 miles long has been built, as well as camps for a big crew.

Riverside Paper Corporation, Appleton, is constructing an addition 55 by 60 feet, and 18 feet high, using reinforced concrete, steel and face brick. The structure is an enlargement of the storage building and its cost will be approximately $7,500. The contract was awarded to C. R. Meyer & Sons Co., Oshkosh.

Normal working schedules have been adopted again by the Valley Iron Works Co., Appleton. The plant was run for sometime on a 5-hour day basis, alternating between employees so all would have work. The 8-hour day has been resumed.

Flames in the beater room of the Outagamie mill of the Patten Paper Co., Ltd., at Kaukauna, recently caused damage of about $2,500. Although little damage was done to machinery, the mill was shut down temporarily.

Construction work has been completed by the Allan Waste Paper Co., Menasha, on a large addition. This unit houses a new conveyor system and other equipment for the efficient handling of large quantities of paper for Fox River Valley mills.

Paul Sievert, formerly general manager of the Marinette & Menominee Paper Co., has been transferred to the position of manager of manufacturing for the western division of the Kraft Corporation, subsidiary of International Paper Co., at Bastrop, La. He is succeeded at Marinette by A. B. Hansen.

Cutler-Hammer, Inc., Milwaukee, Wis., announces that B. L. Donahue, who has been connected with its Pittsburgh branch for the past eight years, has been appointed manager of the Buffalo district office to succeed B. A. Hansen, who has resigned.

PACIFIC COAST

OREGON

The Paper-Pulp Machinery Corporation has been launched through filing of articles of incorporation late last month in Portland with a capital stock of $50,000, incorporators being Sigrud Norman, who was recently associated with the Spaulding Pulp & Paper Co., but who is now with the Sumner Iron Works at Everett, Wash., A. C. Little of Newberg and Thos. Bilyeu, patent attorney of Portland.

Charles McKillop is the new representative for the Graham Paper Co. in Portland, succeeding Ira F. Doud who had been in charge of the headquarters in Oregon for the past 16 years. Offices are in the Pittock block.

Graham Whitehurst, recently with the headquarters operating department staff of the Zellerbach Paper Co., has been appointed to operating manager of the Portland branch of the company, succeeding Walter R. McWaters, Jr., who has been transferred to San Francisco as manager of the operating department of the headquarters there.

Remodeling of the building of the F. C. Stettler Mfg. Co., Portland, destroyed by fire a few months ago, has been completed at a cost of $50,000, and with the installation of machinery now under way the company expects to be prepared for the paper box trade requirements for the holiday season in their regular markets.

Fir-Tex Opens Eastern Office

Atlantic Fir-Tex offices have been opened in Grand Central Terminal, New York City, by the Fir-Tex Insulating Board Co., whose new plant is in St. Helens. This new headquarters will handle distribution of Fir-Tex products for the New England states, eastern New York and the Metropolitan area of New York including Newark, New Jersey.

A. E. Millington, vice-president and general manager of Fir-Tex, and Glenn W. Cheney, of Dant & Russell, Portland, general distributors for the company's products, have been in the east getting the new offices established and outlining the distribution campaign. The Guernsey-Westbrook Co. of Hartford, Conn., and New York City, have been appointed exclusive sales representatives and will carry stock for distribution at New York, Hartford and Boston.

The Jaite Co., St. Helens, has filed articles of incorporation with a capital stock of $100,000, for the manufacture and sale of paper bags. Incorporators named are Harry O. Strom, L. A. Linville and Clara C. Mercer. The Jaite Bag Co. operates a factory at St. Helens.

Blake, Moffitt & Towne, with headquarters in 17 cities of the West, has been appointed distributor for newsprint made by the Powell River Co., Ltd., under a price quotation of $58 a ton for the remainder of 1930 and a guaranteed maximum of $60 effective up to 1933, this special price applicable only on the west coast.

St. Helens to Expand

St. Helens Pulp & Paper Company, St. Helens, announced plans last month for construction of a new unit to house a second paper machine, with a 202-inch wire and rope drive, now being manufactured at the Beloit Iron Works. Guthrie Construction Company has the contract for the building and are already executing preliminary plans.

The new paper machine will be ready for operation within five or six months, it is expected, and will manufacture a lightweight kraft, using surplus pulp now on hand. The building to house the machine will be of reinforced concrete

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Lower felt cost per ton is the direct result of the strength, openness, longer life and superior finish of Kenwood Tanned Felts. Each of these important advantages is a development of Kenwood research applied to fundamentally sound design.

Kenwood pioneered the one-sided board felt. The same research service developed and perfected the patented Kenwood Tanning Processes which protect the felt from the deteriorating effects of acids. A third major development is found in the new method of yarn construction which, while adding nothing to the size or weight of the yarn, provides definite advantages both in strength and increased openness.

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and steel conforming to the general architectural plan of the other structures, and will represent an investment of several hundred thousand above the cost of the paper machine itself, according to Max Oberdorfer, president of the St. Helens Pulp & Paper Co. Capacity of the mill will be increased about 30 per cent and about 50 additional employees will be required.

The Oregon Pulp & Paper Co., Salem, which has been engaged in some litigation with the city regarding the vacation of part of Trade street for use as an additional site for plant improvements, have now had the matter settled in their favor and will proceed to build a warehouse and otherwise enlarge the mill.

CALIFORNIA

H. L. Zellerbach, president of the Zellerbach Paper Co., recently announced that Robert C. Clark, manager for a number of years for the Fresno division of the company, has been promoted to an executive sales position in the San Francisco headquarters. Alvin R. Kuhn, recently manager of the Seattle division succeeds Mr. Clark at Fresno. Philo K. Holland has been made manager of the San Jose division operating department.

Earl E. Brown, of the Los Angeles division of Blake, Moffitt & Towne, has been transferred to Tucson, Arizona, as division manager.

F. F. Foote who has been in charge of the San Francisco offices of the Pacific Coast Paper Mills has been transferred to the sales department of the company at Westminster, B. C. He is succeeded by C. G. Sparrow who formerly had connections with the Butler Paper Corporation.

The Bristol Co., of Waterbury, Conn., has just opened a new laboratory at 311 Minna street, San Francisco, with a view to giving better service to its customers, as previously the nearest laboratory was Chicago. General coast offices of the company will remain as formerly in the Rialto building, San Francisco. George C. Fairbank, who has served the company for 25 years, comes to the California laboratory as foreman from Toronto, Canada.

H. A. Vernet, sales engineer of the Oliver United Filters, Inc., San Francisco, is one of the latest additions to membership of Tappi.

Andrew H. Cochran, formerly representative in the northwest for the Cascade Paper Mill which closed a few months ago in Tacoma, has joined Bonestell & Co., San Francisco, as representative to the publishing trade for high-grade book papers.

Charles Kahn, secretary of the Pacific States Paper Trade Ass'n; Harold Zellerbach, president of the Zellerbach Paper Co., and Eugene Breyman, vice-president of the company, were delegates to the convention of the National Paper Trades Association in Chicago.

Bates Valve Bag Co., has established branch sales offices in San Francisco at 1014 Phelan building with G. A. Cullom as manager. Full stocks of "Bates" multiwall paper bags for plaster, cement, etc., will be carried. The company has recently completed construction of a mill in Seattle.

The M. R. K. Tablet Co., Inc., has been formed in Los Angeles, with a capital of 5,000 shares of stock, no par value, to manufacture writing tablets and similar items. William R. Redmond, Story building, E. McMann and A. VanCott are members of the new firm.

The Pacific Fibre and Cordage Co., with headquarters at 2740 Pacific street, San Pedro, has awarded general contract for a new plant unit in the harbor section of Wilmington to W. H. McAllister of San Pedro. The project will cost about $25,000 and will be one story, 60 x 150 feet.

WASHINGTON

Inland Empire Announces Building Plans

The Inland Empire Paper Co., Millwood, Wash., has awarded contracts to the Austin Company for new building construction in excess of $150,000, this being the first step in a program of expansion which will probably reach an investment of $350,000, part of which will represent remodeling and improvements in the present plant.

Coincident with this announcement is the report that public offering is to be made shortly of $350,000 of a first and general mortgage bond issue. Oerings will be made, it is stated, by Spokane investment houses headed by the firms of Ferris & Hardgrove and Richards and Blum, Inc., investment bankers.

A. W. Akers has been promoted to the position of manager of the Seattle headquarters of the Zellerbach Paper Co. He is an engineer by profession and has been in offices in the White building for some time handling purchases for all the mills in the vicinity associated with Zellerbach's. He was formerly operating manager of the San Francisco division. T. J. Severson has been appointed head of the printing paper department of the Seattle office.

B. P. Jaggard, who formerly represented the defunct Cascade Paper Co. of Tacoma as sales promotion manager, is now acting as representative for the Grays Harbor Pulp & Paper Co., Hoquiam, and the Hammermill Paper Co. with which the Grays Harbor Co. is affiliated. His headquarters are now in San Francisco.

Axel Klingberg, recently with the Thilmany Pulp & Paper Co., Kaukauna, Wis., has accepted the position of chief chemist at the new plant of the Puget Sound Pulp & Timber Company at Everett. Mr. Klingberg attended the Tappi meeting in Portland last month.

The Pacific Coast Paper Mills, Inc., is planning an improvement program for its Bellingham mill which will provide facilities for 60 carloads of finished stock ready for shipment each day. The work will be done gradually and will probably reach a total investment of $400,000, according to report.

The Thermax Corporation, manufacturer of insulating board from lumber waste, with offices in Seattle and a mill near Spokane, is now making insulating board of one inch and two inch thickness in widths 20, 48 and 64 inches. Its capacity is said to be 30,000,000 square feet annually and plans at present are to keep a full force busy.

N. O. Galteland, Puget Sound Pulp & Timber Co., Everett, is among the new members of Tappi in the northwest. Others include V. B. Waterman, Crown Willamette Paper Co., Camas, and Walter Holzer of the same mill, and J. D. Hull, consulting engineer of Seattle.

American Hoist & Derrick Announce Changes

The American Hoist & Derrick Co., St. Paul, Minn., announces the discontinuance of its Dayton office and the opening of a new office in Indianapolis, Ind., at 703 New City Trust Bldg. I. R. Bailey and Wm. M. Schoen, stationed at Indianapolis for a number of years will be at the new office.

J. T. Conners, formerly district manager in Detroit for the Thew Shovel Co. has made a connection with the American Hoist & Derrick, and will be stationed at St. Paul, having charge of American Gopher sales in the field.

Expanding the sales, service and distribution facilities, Merco Nordstrom Valve Company, San Francisco, has opened an office in Charleston, West Virginia at 304 Capitol street. The office will be under the management of H. D. Puos.

More and more machines are being hooded, now that hoods with these features are available

Built of Johns-Manville Transite Asbestos Lumber.

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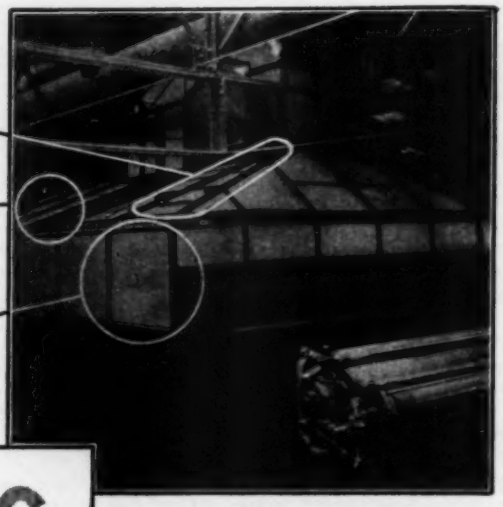

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With its removable panels built complete in our shops before shipping, a Ross Hood can be erected over the week-end shut-down. Ask us to send full description and details.

Some of the mills equipped with Ross Hoods

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Champion Paper Corp.
Congoleum Nairn, Inc.
*Crocker Burbank & Co.
Draycott Mills, Inc.
Eastman Kodak Co.
Hollingsworth & Vose Co.
International Paper Co.
Island Paper Co.
P. H. Glatfelter Co.
*Maine Seaboard Paper Co.
Marshall Bros., Inc.
Monadnock Paper Mills
Moyer & Pratt
*Oxford Paper Co.
Puget Sound Pulp & Timber Co.
*Reading Paper Mills
Schmidt & Ault Paper Co.
Schweitzer, Peter J., Inc.
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Canadian News

No Change in Newsprint Situation

Developments in the newsprint industry since the resignation of Col. Price as chairman of the Newsprint Institute of Canada can be summed up by "Plenty of gossip but no actual news."

The big question now from the standpoint of the public is as to whether or not the newsprint industry is in for a period of cut-throat competition in price, and on this point opinions are divided. Some believe that with the Hearst interests now partners in the newsprint industry they will be a strong factor in maintaining a reasonable price for newsprint, and will seek profits rather from their newsprint holdings than by cheapening the product for their publications. Others hold that as independent companies have been cutting the price all along, and have been running at full capacity while the companies in the Newsprint Institute have been keeping down production in the interests of price maintenance, there will now be a fight to a finish, with the elimination of the high-cost mills.

Merger May Result in Complete Consolidation—There is a practically universal feeling that a gigantic merger, which will bring together at least half the Canadian producing capacity, is bound to be effected; but past experience has shown that it is useless to try to obtain the least advance information regarding the new grouping. Meanwhile, according to the "reliable information" published in the newspapers, negotiations are proceeding satisfactorily. Delays in definite developments, it is stated, are only to be expected, as it is the intention of the various groups who are negotiating to work for a complete consolidation and not to stop short of this if it is within the realm of possibility. It now seems to be accepted that the Canadian mills of International Paper may come into the picture, the plan being to create a holding company which would control as its major elements Canada Power and Paper, Abitibi Power and Paper, the Backus-Brooks mills, and the Canadian mills of International Paper. The combined daily capacity of the mills thus controlled would be approximately 7,000 tons, leaving independent producers in Canada with some 5,000 tons productive capacity.

In the meantime, the Canadian mills are practically marking time: during September they turned out 195,590 tons and operated at 66.8 per cent of capacity, as compared with 202,043 tons and 66.4 per cent the previous month. While this may appear a considerable falling from the 91.3 per cent operating rate of September 1929, it must be remembered that the productive capacity of the mills have been increased considerably during the last year, and a more correct idea of conditions is obtained by considering that production for the first nine months of 1930 was only five per cent below that of the corresponding period of 1929. In view of the depression prevailing in industry throughout the world these figures could be considered as highly satisfactory, were it not that the price is admittedly too low to enable the mills to make a reasonable profit on their investments, and that if a solution is not found for the grave problems at present facing the industry, there is serious danger of the situation taking a critical turn through an impending price war.

In the new tariff schedule issued at Ottawa there was a section in the original wording which called for a per pound rate on paper containers of all kinds, corrugated or fiber. It was found out that, in the case of set-up and folding boxes, the per pound basis such as proposed would actually reduce the protection enjoyed by the industry, in many cases cutting it to 10 per cent and less. As a result of representations made at Ottawa by a delegation of the Canadian Paper Box Manufacturers' Association, the wording of the clause was changed, so that set-up and folding cartons will come into the Dominion under the old classification at 35 per cent.

Edward Beck

Edward Beck, secretary and manager of the Canadian Pulp and Paper Association, died on October 23, at the Royal Victoria Hospital in Montreal, at the age of 63 years.

One of the outstanding figures in the history of Canadian journalism, Mr. Beck was born in Hertfordshire, England, and began his long newspaper career when he became a compositor on the **Detroit News** about 45 years ago. Mr. Beck rose to be executive editor of the **Detroit News** and lived in that city for many years before coming to Montreal. In 1906 he became editor-in-chief of the **Montreal Herald**, and four years later he accepted the position of managing editor of the **Montreal Star**. Ill health caused him to retire for sometime. Later he became interested in the **Montreal Daily Mail** and founded **Beck's Weekly**, which terminated with the outbreak of the war. Subsequently he went west to take the editorship of the **Winnipeg Telegram**.

Mr. Beck's connection with the paper industry dates from 1917, when he came to the Canadian Pulp and Paper Association as assistant-secretary, which position he occupied until 1921, when he took charge of the association's affairs on the resignation of A. L. Dawe. But journalism continued to interest him, and he came to be looked upon as the outstanding executive in journalism in Canada.

To Mr. Beck's credit is placed the establishment of the Pulp and Paper Research Institute, the only building of its kind in the world. In co-operation with others, Mr. Beck realized the possibilities such an institution and devoted much time and effort to bring it about. He also traveled extensively in the interests of the pulp and paper industry all over the United States, in England, and on the continent of Europe.

He is survived by his wife, née Anne Smythe, and by his two sons, Frederick, of Vancouver, and Norman E., of Atlanta, Georgia.

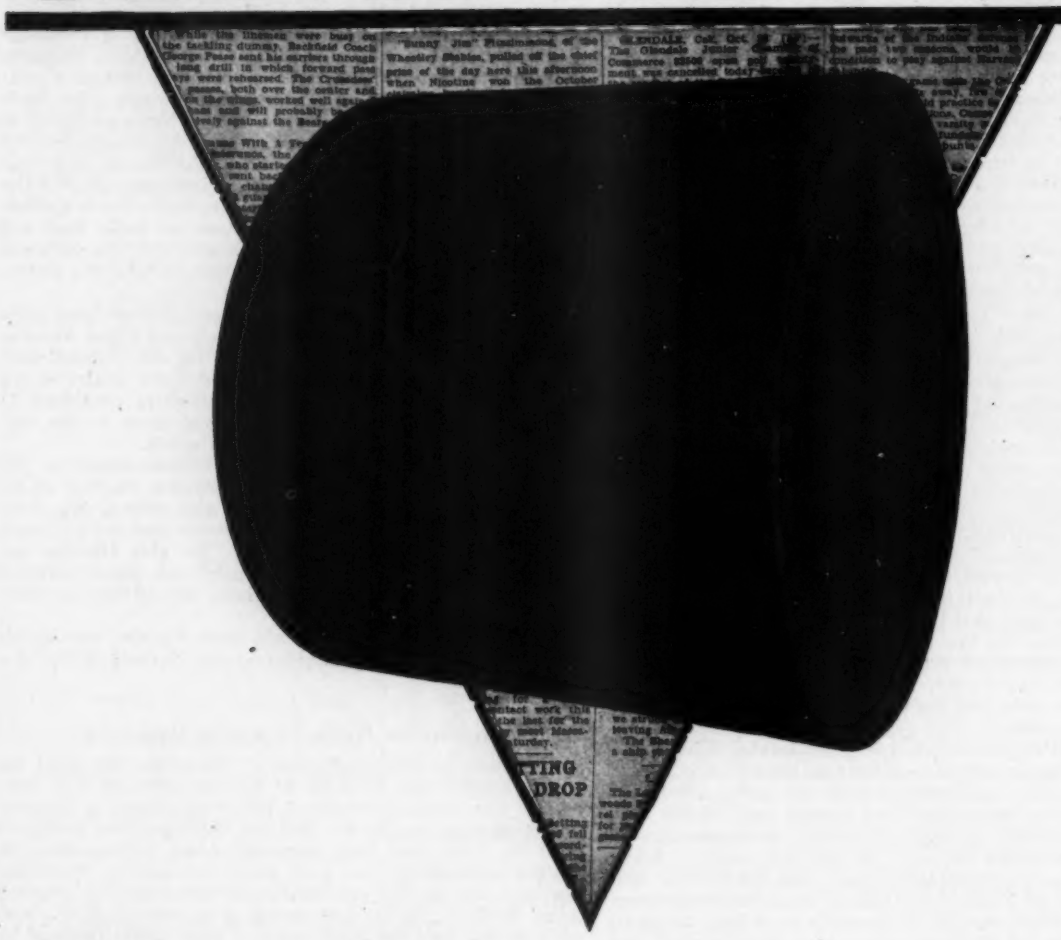
Newsprint Rates Hearings Resumed

Argument on the application of Canadian newsprint interests against the increase in freight rates on that commodity was resumed October 7 before the Board of Railway Commissioners, at Ottawa, and the hearings were continued until the 15th when they were adjourned to November 24. All the evidence has now been submitted, and the November hearings will be for presentation of argument by counsel. Aimé Geoffrion, K. C., and George Montgomery, K. C., both of Montreal, lead the large array of legal talent retained by the newsprint interests; opposed to them are Allistair Fraser, K. C., for the Canadian National Railway, and E. P. Flintoff, K. C., for the Canadian Pacific Railway, as well as representatives of some of the United States railways, which are watching the case.

The hearings have arisen out of the increased rates on newsprint published by the railways sometime ago, this increase affecting only such traffic as originated in Canada and had its destination in the United States. Inasmuch as such an increase would also affect United States carriers, the question was argued, for the publishers and other newsprint users of that country, before the Interstate Commerce Commission. Hearings began before that body in 1928 and ended last May. The Commission has not yet rendered judgment. The Canadian hearings were begun last spring. It is probable that the two bodies will hold a conference before rendering their judgments.

The evidence presented was extremely technical, ranging all the way from the grade and temperature of various stations on the Canadian National to the price of newsprint f.o.b. New York. According to W. J. Mathey, representative of several groups of newsprint users in the New England States and the Mid-West, should the proposed increase in

NORTON PULPSTONE



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freight rates become effective, United States publishers would look elsewhere than Canada for their sources of supply. To the publishers in 13 cities west of the Mississippi River, the increased rates would mean an added cost per annum of $208,000, on the assumption that the same volume of newsprint was carried as before. For various reasons, this increased cost could not be passed on to the consumers.

At a meeting of the Newsprint Institute of Canada, which was held in Montreal on October 17, W. H. O'Reilly, who has been associated with the Institute since its inception, was appointed permanent secretary and chief executive officer, to fill the vacancy created by the death of the late Percy B. Wilson. The resignation of Col. J. H. Price as chairman of the Institute, which was proffered about three weeks earlier, was accepted, but nothing was done with regard to naming a new chairman.

Growth of the roofing paper and wallboard industries in the Dominion is indicated by statistics recently published by the Federal Government. The value of production has grown to $6,111,663 in 1929, from $5,844,387 in the preceding year. Products of the industry are composition roofing in rolls, building paper and insulating and construction wallboard of all kinds. In all cases the figures for 1929 show increases over those for 1928. The raw materials used are chiefly paper, felts and paperboards.

C. V. Hodder, secretary of the Canadian Paper Box Manufacturers' Association, sees in the increased tariff rates recently put into force by the Bennett Government, a move that is going to react favorably on Canadian business of the box makers and one that is going to help Canadian business interests generally, although this may not be observable at once. According to Mr. Hodder, the new rates will more directly affect the corrugated board manufacturers and makers of fiber board, while the antidumping measure will be of more direct benefit to the folding and set up sections of the paper box industry.

❖ QUEBEC ❖

Premier Defends Government's Policy

The transfer of practically all of International Paper's newsprint manufacturing to Canada is considered as a victory for the policy followed during the past 20 years by the Quebec Government in its determination to establish a great and flourishing basic industry in the Province, although the present premier ascribes it to the business acumen of International Paper in speeding up the trend of economic developments which have been shaping this way for several years. It is the recognition, in his opinion, of the United States newsprint mill that they cannot compete any longer with the cheap wood supply and contiguous water power found together in Canada. Principal credit for this movement, nevertheless, is being given to the late Premier Gouin, who initiated the policy of keeping Canadian wood for Canadian industries, and to Premier Taschereau who extended this policy and has been co-operating with the leaders of the newsprint industry.

Premier Taschereau stated that the closing of eight mills in the United States will benefit labor conditions this winter in Quebec. Due to the increased efficiency of the International mills at Gatineau, Dalhousie, N. B., and Three-Rivers, this transferred tonnage can now be taken care of in the Provinces of Quebec and New Brunswick. Since International has not built any mills in Ontario, only Quebec and New Brunswick will benefit directly in the increased employment in the mills and the bush this winter. In this way also the company is doing its share of curtailment of unemployment in Canada.

Premier Taschereau denied most emphatically the charges laid against him and against Premier Ferguson of Ontario in the United States that they had forced International Paper Co. into a price arrangement with the other Canadian manufacturers of newsprint by threatening disciplinary action and pressure against the company. "We never did," Premier Taschereau declared. "We only gave some advice, which was more or less followed." Whether the transfer of the newsprint production from the United States to Canada was a part of this advice is not known. The transfer of the tonnage of these eight mills to Canada this year has raised the wood cutting of Canadian International Paper Co. to the total of 1,000,000 cords.

New Boiler House Constructed

Hydroelectric development in Newfoundland may be checked by the action of the Anglo-Newfoundland Development Co., now nearing completion of installing a 5,000 hp. pulverized-coal burning steam plant at Grand Falls. Another 150-ton newsprint machine will be installed shortly, bringing the total daily production up to 550.

Two years ago tentative plans were made for a canal on the right bank and largely increased power development with the installation of an electric smelter for Buchans ore contemplated. Elaborate investigation showed the cost of a modern steam plant with cheap pulverized coal was practically equivalent to the cost of hydro-power.

A contract recently signed with International Paper for delivery of a maximum of 6,000 hp. from Deer Lake to Buchans eliminated that problem and decided the company on the present move. It is believed that the new installation will likely have considerable repercussion on the proposed Gander Valley installation where, due to the flat nature of the country, hydro-development for a 1,000-ton mill is a most extensive and expensive proposition.

St. Lawrence Earned Preferred Dividend

The annual report of the St. Lawrence Paper Mills Co., of Three-Rivers for the 12 months ending June 30 last, shows that earnings amounted to $1,389,496. This was after deduction of all manufacturing and other charges, including depletion and income tax, but before provision for depreciation. After depreciation there remained a net profit of $976,778.

The preferred dividend of $855,000 was earned by a comfortable margin, and there remained a sum equal to 24 cents a share on the 515,000 shares of common stock presently outstanding. Of these, 15,000 shares were issued during the year in part payment for 36,000 shares of Lake St. John Power and Paper preferred stock.

Last month officials of the Algonquin Paper Co., Ogdensburg, N. Y., made an inspection trip of the extensive holdings of the company at Mont Louis. Construction of a new pulpwood terminal and power plant is now nearing completion at that place, and about $100,000 is being expended on the project. The party motored from Ogdensburg to Quebec City, where they boarded a steamer for the trip to Mont Louis.

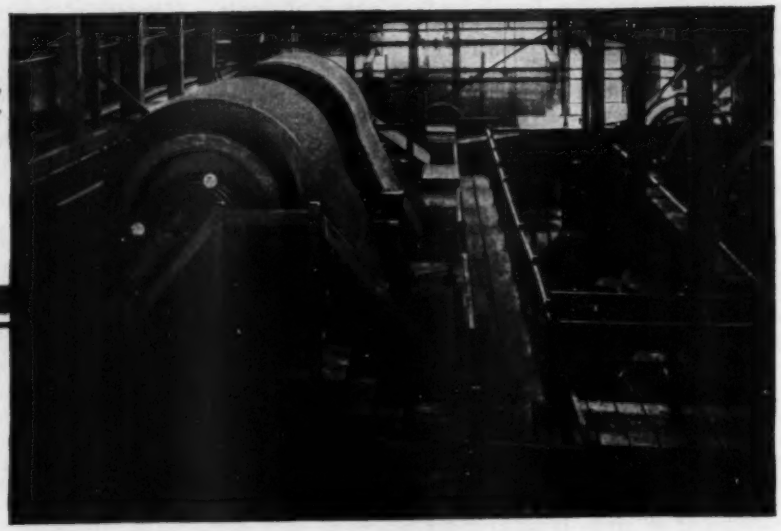
Plan Rehabilitation of Eddy Plants

As a start on a project which has for its object the complete rehabilitation of the plants of the E. B. Eddy Co., Hull, plans are now being prepared for the erection of a modern filtration plant and bleaching plant at the present site of the sulphite mill near the interprovincial bridge between Hull and Ottawa. The cost of this initial step will run to some $1,800,000.

Officers of the company have made it clear that the contemplated expenditure is only the first unit in a larger scheme, which will run into many millions of dollars, and which will extend over a number of years. The company has decided to rehabilitate completely the entire plant, in a mechanical sense. New buildings will be erected as the scheme unfolds.

The initial power plant of the Alcoa Power Co., at Chute-à-Caron on the Saguenay river, which attracted wide attention in engineering circles last summer when an immense obelisk

6 Important Orders Recently Received (*comprising*)



9 Kraft Deckers
2 Groundwood Deckers
3 Broke Deckers
3 Save-Alls
1 Glassene Stock Bleach Washer

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WITHIN a short period, orders have come in for Oliver United equipment from several prominent paper mills widely separated geographically:

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Plant # 2 ordered 2—8′ x 14′ Groundwood Deckers and 3—8′ x 14′ Broke Deckers.

Plant #3 ordered 4—5′5″ x 10′ Kraft Deckers.

Plant # 4 ordered 1—5′5″ x 6′ Kraft Decker.

Plant # 5 ordered 1—5′5″ x 6′ Glassene Stock Bleach Washer.

Plant # 6 ordered 1—8′ x 12′ Save-All.

A record of consistently high-grade work on all kinds of stock was largely responsible for these orders. High capacity, long cloth life, high fiber recovery, low maintenance. And from another angle, filter effluent so clear that it could be re-used.

The total number of Oliver United paper mill units now runs well into the seven hundreds. When it is considered that all these installations have been made in the past few years, this total is significant. It is convincing evidence that Oliver United units are the modern equipment for paper mills to use to reduce costs to a minimum.

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HONOLULU — W. A. Ramsay Co.
MANILA — The Edward J. Nell Co.
STOCKHOLM, SWEDEN — T. An Tesch

was dropped into the bed of the Saguenay, blocking the channel in the course of a few seconds, will probably be completed early next spring. With a head of approximately 180 feet, the first Chute-à-Caron power plant will produce an average of 260,000 hp. which will be generated by four turbines, each unit developing 65,000 hp. While some of the electric energy may be placed on the market, it is believed the great bulk will be utilized by the Aluminum Co. of Canada at its Arvida plant.

Chicoutimi Mill Closed Down

The Chicoutimi mill of Quebec Pulp and Paper Corp. was closed on October 31. Unfavorable conditions of the groundwood market was given as the reason for this decision of the corporation, which manufactures groundwood pulp and has a rated capacity of 350 short tons a day at the Chicoutimi mill.

The decision to close the mill is a reflection of the present unsatisfactory conditions in the paper industry in Canada and was to some extent foreseen in President McNichol's remarks to shareholders in submitting the annual report for last year. He stated that "events during 1929 have supported the opinion previously given that the manufacturing and marketing of groundwood holds no definite hope of profitable development." These conditions apparently have become accentuated during the present year. Quebec Pulp and Paper Corp. showed a deficit for the year 1929 amounting to $309,082, before providing for depreciation.

The newsprint mill of the James Maclaren Co. at Masson, was started up last month, and is shipping the output of one of its two machines through the St. Lawrence Corp. Each of the machines has a capacity of 125 tons per day. The sulphite mill is using the Chemipulp Process, being the tenth mill in which this process has been installed.

Canadian Paperboard Creditors Receive Dividend

The creditors of Canadian Paperboard Co. have each received a check for a six per cent dividend from F. C. Clarkson, the trustee. In a letter enclosing the check, which is marked "first and final dividend," it is stated that the check for this six per cent dividend is "payable by the receiver, acting for bondholders, for the creditors' interest in the assets of the estate in bankruptcy, outside of the equity in the bondholders' assets, after payment of the claims of the bondholders." It is further stated that, "with such sale of assets, the creditors do not alienate or dispose of their equities in the estate—whatever they may be—after the payment of bondholders' claims."

The letter adds that the business is now being operated and making some minor profits and that the hope and expectation are that eventually some reorganization or rearrangement will be made which will give a reasonable return to the creditors.

It is stated that E. A. Bertrand, assistant liquidator of Saguenay Pulp and Power Co. will make a final settlement with preferred shareholders of the company very shortly. The payment will be one of 5 per cent which, on a basis of $5 par value of the preferred stock will amount to 25 cents a share. This will apply on $3,500,000 of the preferred stock and will amount to $175,000. As the distribution on the preferred stock will absorb the entire surplus now left in the hands of the liquidator, there will be nothing paid on the common, and common share holders are advised not to mail their certificates to the liquidator.

A reduction of 50 per cent in the stumpage dues on all burned timber in the Province of Quebec cut before March 31, 1931 was announced recently by Premier Taschereau. In addition other reductions will be made on wind-thrown timber and logs cut for manufacture into timber lumber. The reduction in stumpage dues on burned timber is expected to help solve the unemployment question, for it will mean that more burned timber will be cut with a greater number of men being employed in the woods, and a consequent increase in lumbering operations throughout the Province.

Canipco News

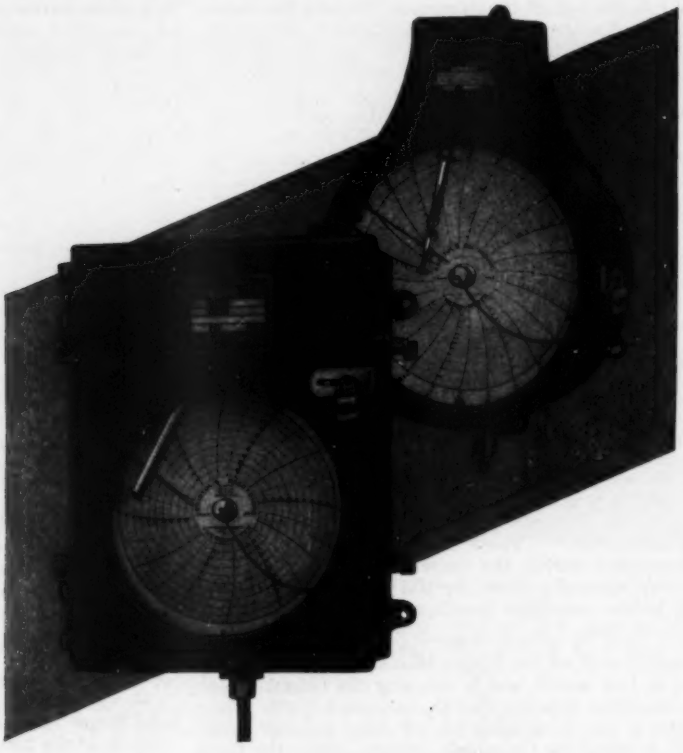
The new 220,000-volt aluminum transmission line connecting the Paugan hydroelectric plant of Gatineau Power Co., an International Paper subsidiary, with Toronto, constructed jointly with the Hydro-Electric Power Commission of Ontario, is the third important aluminum line placed in operation by International Paper in the past 12 months. The first 25 miles of this line, extending from the power plant to the Quebec-Ontario boundary, are owned by the company and the balance by the commission. The other two lines are the 104-mile 132,000-volt line from Grand Falls, N. B., to the Dalhousie newsprint mill, and the 126-mile 220,000-volt line from its recently completed 200,000-hp. 15-Mile Falls hydroelectric plant to its Tewksbury, Mass, sub-station. The new Paugan-Toronto transmission is the second line between those points and parallels the first at a distance of 100 feet. The two lines are now carrying between them 200,000 hp. which Gatineau Power is delivering under a long-term contract to the Hydro-Electric Power Commission for distribution in the Toronto area to supplement the Niagara Falls supply. In addition to these three aluminum lines, Gatineau Power in the last few years has completed eight 110,000-volt aluminum lines of an aggregate length of 160 circuit miles. These eight lines interconnect its Gatineau and Ottawa rivers hydroelectric generating stations and also run to the Gatineau newsprint mill and the Hawkesbury sulphite mill of Canadian International Paper.

In view of the extensive interests of International Paper and Power in Canada, it is interesting to note that the completion of the 200,000-hp. hydroelectric plant at Fifteen-Mile Falls, on the upper Connecticut River, raise to over one million horsepower the installed capacity of the hydroelectric plants of International Hydro-Electric System, a division of International Paper and Power. Of this total, 625,000 hp. is in Canada, the bulk of it being generated in the Gatineau Power Co.'s three plants on the Gatineau river.

Owing to the transfer of tonnage from the company's United States newsprint mills to the Canadian mills, the woods operations this winter will be on a somewhat larger scale than last winter, which will help relieve the unemployment situation. The company has informed Premier Taschereau that it expects to cut 370,000,000 feet of wood this winter, whereas only 300,000,000 feet were cut last winter.

Price Bros. and Co. recently reported a shortage of labor for woods operations in the Chicoutimi district. In a letter to Premier Taschereau they stated that they had posted a notice calling for 75 laborers, but received no applications. It is suggested that the recent industrial developments in that region and the more intensive and perhaps more profitable farming on the better lands in the valleys of the Saguenay, tend to breed a disinclination among the residents for work in the woods. Especially is this the case when felling operations are carried on in the summer, which course the company has been compelled to adopt in order to carry out the ever closer utilization called for by the Department of Lands and Forests. Last year the company cut 90,000 cords, and this year it plans to cut about 92,000 cords, but operations will be distributed in slightly different areas because they will be carried on in the Lake St. John region instead of the Boileau and Ferland regions.

Harcourt Powell, superintendent of the paper mill of the Laurentide Division, Canada Power and Paper Corp., Grand'Mère, has been transferred to an executive position on the corporation's sale division staff, Montreal. Prior to his departure from Grand'Mère, Mr. Powell was the guest of honor at two functions. The first was in the nature of a party, when his mill associates and other friends gathered together at the summer camp of J. H. Cunningham at Lac des Piles, and presented a souvenir of their esteem of his



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good fellowship and of his 18 years' residence in Grand'Mère. The other function was a gathering of the paper mill employees in the paper mill smoking room, on September 30, when they presented him, through Troy E. Blinco, assistant paper mill superintendent, with a gold watch chain and brief case, as a token of their esteem and good wishes for his success in his new position.

ONTARIO

Abitibi Jottings

The construction camp at Abitibi Canyon is now completed and, according to W. C. Millar, chief sanitary inspector for the Ontario Department of Health, it is one of the most sanitary camps that have ever been built in Ontario. There are some 950 men at work in the camp, and all the buildings required for their accommodation have been erected and are in use.

As there is very little likelihood of sufficient orders being secured to warrant the re-opening of the Espanola mill during the coming winter, the wood at Espanola is being shipped to the Soo Division where two of the machines are at present in operation. About 50 men are employed at Espanola on this work, and it is expected that, at the rate of 100 carloads a week, about six months will be required to complete the work. The company has made arrangements with the construction contractors at Abitibi Canyon to employ as many of the former Espanola employees as possible, and it is expected that between 250 and 300 men will avail themselves of the opportunity.

Early last month the Trades and Labor Council of Port Arthur forwarded to the city council a strongly worded resolution for which endorsement was requested. This resolution protested against the closing of the Thunder Bay Division of Abitibi, claiming that by closing down the mill the company failed to live up to its agreement with the city and provincial government. About a week ago the company announced receipt of orders for 24,000 tons of newsprint to be manufactured at the Thunder Bay Division, which will give employment to 320 men for sometime.

Common shareholders of Abitibi are greatly disturbed over the price of their shares, which fell below 10 during the recent market slump. Besides, rumors are in circulation to the effect that this company is about to enter a merger with Canada Power and Paper, St. Lawrence and the Backus-Brooks interests. The question is being asked what Abitibi would gain by entering such a combination. Shareholders point out with a considerable amount of feeling that they have nothing to gain by being placed junior to the present bonded debt of Canada Power and Paper as well as to the preferred stocks which greatly exceed those of Abitibi. Abitibi is well equipped for power and as nearly as can be estimated is a low-cost newsprint producer.

Charles Dupuis has been appointed superintendent of the Port Arthur mill of Provincial Paper, Ltd., an Abitibi subsidiary.

Dryden Business Satisfactory

Recent advices say that unconfirmed reports are abroad to the effect that Canada Power and Paper Corp. will shortly take over Dryden Paper Co. on a stock exchange basis. It is understood that the exchange will consist of two shares of the former for three of the latter. This move would likely fit in well with Canada Power's plans of expansion, which have resulted, during the past few months, in the acquisition of Port Alfred, Wayagamack and Anglo-Canadian. Dryden is exclusively a kraft producer. It has built up a substantial business in the Prairies and marketed approximately two-thirds of its total output with the Bates Valve Bag Co., which operates a plant at Dryden. For a number of years Dryden has operated under a receiver, but in 1928 the company was reorganized and refinanced. The first report issued by the company, covering the year ended September 30 last, showed a satisfactory earning power amounting to a little better than $1 a share on the common stock.

Though conditions have not been so favorable for sales this year, it is reported that returns have been satisfactory. The recent amendment to the tariff, providing for more protection to the kraft manufacturers, should strengthen the position of the company. Provided that the deal goes through on the basis as at present mentioned, Canada Power will exchange 100,000 shares for 150,000 shares of Dryden.

The Provincial Government has decided to spend some $80,000 on slash burning as an unemployment relief measure, and the work has already been started. The measure has been approved by Ottawa, and is being launched, not only with a view to unemployment relief, but also with the object of further safeguarding the outlying settlements and timber areas of the North against loss by fire. Special attention is to be paid to the matter of improving the safety zones now existing in hazardous districts. The $80,000 expenditure may be extended, it is intimated, if the circumstances warrant.

International Fibreboard, Ltd., controlled by Canadian International Paper, which operates mills at Gatineau, Que., and Midland, Ont., has opened a branch office at 2368 Dundas St., Toronto, in order to enable it the better to serve the growing needs of the Toronto market. In future, all Toronto business will be conducted by the company's own local sales staff.

Carthage Machine Co. of Canada is now introducing to the industry a new coarse screen for use in screening sulphite and groundwood stock. Also for the first time in a number of years the company is altering the design of the chippers.

The Norton Co. of Canada, Ltd., has completed an addition to its factory at Hamilton, which is fully equipped to look after the manufacture of all different sizes of wood grinding stones. The segments of the pulpstones are being molded, fired and mounted in the plant in question, so that it is now possible to carry out the requisite operations from the commencement right up to the finished product in one building. The factory is very busy at the present time, as it has orders booked for several months ahead.

No. 1 machine at the Merritton plant of Interlake Tissue Mills Co., Ltd., has now come into production, after its recent rebuilding, and is running extremely satisfactorily, producing a remarkably good sheet of paper.

About 10,000 cords of pulpwood, belonging to the Ontario Paper Co., were destroyed by fire of unknown origin at Wasach, last month. The wood was piled close to the mill of the Hawk Lake Lumber Co., and only through the exceptional work of the Ontario Forestry Service the fire was prevented from spreading to the mill.

Fire broke out in the premises of the Toronto Waste Paper Co. and adjoining buildings at the corner of Princess and Front Streets, Toronto, recently, and did damage to the extent of $35,000. The whole building is a loss. Some 25 people were thrown out of employment.

While no official statement of the disposition of the estate of the late J. Fred Booth, vice-president of J. R. Booth, Ltd., has been issued, it is understood that the total will reach in the neighborhood of $8,000,000. The estate includes life insurance to the amount of $1,300,000, and is left to the four members of the family.

Interlake Tissue Mills Co., Ltd., Toronto, states that its plant is at present being operated on a full time basis, while sales turnover is within 97 per cent of the level of this time one year ago. President George Carruthers regards the out-

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look for the balance of this year as promising and reports that forward bookings at the present time are in good volume. It is not expected that earnings for 1930 will be quite as good as in 1929 and, according to present indications, they are running about 12 per cent lower. This reduction in net is very satisfactory in view of the difficult business conditions which have been prevailing throughout the world.

❖ NEW BRUNSWICK ❖

Completion on October 15 by the Dominion Forest Service of its survey of University of New Brunswick woodlands, 3,500 acres in extent, brought the establishment of a permanent plot for forest growth observation in the area nearer accomplishment.

The Canadian Chamber of Commerce, at its annual convention in Toronto last month, elected Angus McLean, founder and former president of the Bathurst Power and Paper Co., Ltd. (now under the management of Canadian International Paper Co.) as its president for the ensuing year. Such a choice is in conformity with the interprovincial principle of the Canadian Chamber of Commerce. During the five years of its existence it has elected presidents from the provinces of Ontario, British Columbia, Quebec, Alberta, and now New Brunswick. Mr. McLean is the first pulp and paper man to hold the office.

While the recently announced reduction in the stumpage rate in New Brunswick is expected to be of little advantage to lumber operators owing to the very unfavorable conditions of the lumber market, considerable benefit is anticipated for pulpwood operators. The rate on pulpwood has been reduced from $3.50 per 1,000 feet to $2.70. In order for the New Brunswick stumpage reduction to be effective, the Dominion Government must recompense the provincial government for all or most of the loss sustained in the decrease of receipts from stumpage levies. The New Brunswick International Paper Co. is considering expansion of its woodland operations during the coming winter because of the stumpage rate reduction.

❖ NOVA SCOTIA ❖

Although no definite announcement has yet been given out by officers of the Mersey Paper Co., Ltd., Liverpool, it is learned that an additional papermaking machine will be placed in operation, probably early next year. This decision has been reached by directors of the company, it is understood, in view of the fact that orders already received by the company amount to slightly more than the present rated productive capacity of 250 tons daily. The plant has been operating at capacity steadily since it was brought into production almost two years ago, shipping the bulk of its product to the Atlantic seaboard.

❖ BRITISH COLUMBIA ❖

Benefit Expected from New Tariff

The pulp and paper industry of this province is expecting material benefits from the new tariff changes recently inaugurated at Ottawa. Paper bag and container manufacturers in British Columbia, who have heretofore met strong competition from the products of Sweden, Belgium and the United States, will now have an opportunity of extending beyond just the provincial market and getting a good share of western Canadian business. The industry is a growing one and to-day is capable of supplying every requirement of

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When lubricants drip and spatter, bearings run dry and machines wear their way prematurely to the junk pile. Flooding of bearings does not solve the problem. It is wasteful and expensive.

Absorbed Oils were developed especially to prevent oil drip and to provide maximum lubrication at minimum cost. Even under the most intense pressures they prevent metal-to-metal contact and remain in the bearings.

The use of Houghton's Absorbed Oils is your guarantee of lower lubrication costs—longer machine life—increased production—and increased profits.

FREE BOOK TELLS WHY

Write for a copy of "Houghton On Industrial Plant Lubrication" and learn why Houghton's Absorbed Oils stay put.

E. F. HOUGHTON & CO.

PHILADELPHIA, PA. *And All Over the World*

163

PROTECTED

PROTECTED—protected by Norwood Filters from all the dirt and debris that will ruin good paper if the water supply is not adequately treated before being taken into the paper making processes. Norwood Filters keep out all impurities during high water or low. They make it possible for a mill to produce paper of uniformly high quality with fewer seconds. They keep costs down and production up.

The Norwood Engineering Company has been building filters for paper mills for nearly forty years. Let the Norwood engineers make a survey of the water conditions at your plant. Their recommendations will be based on wide study and long experience with the water supply problems of paper mills.

Which will you have—the Pressure Filter or the Gravity Filter Catalog? One or both are yours for the asking.

NORWOOD ENGINEERING CO.
16 No. Maple St., Florence, Mass.

NORWOOD

FILTERS - CALENDERS - PLATERS - DUSTERS - RAG THRASHERS - FOLDING MACHINES - SUCTION BOXES

British Columbia for paper boxes and bags and can easily adapt its plants to suit the needs of western Canada.

Previously, St. Louis and San Francisco have offered severe competition on the domestic market in corrugated and other boxes. British Columbia can supply sufficient fiber to enable domestic manufacturers to meet an almost unlimited demand in corrugated containers. By capturing the British Columbia market and expanding into the western Canadian field, plant capacity may be increased and more employment provided for British Columbia workmen.

Expansion at Paper Mill Nears Completion

Expansion work, which has been under way at the pulp and paper plant of the Powell River Co., is now approaching its final stages. This work has been in progress for the past nine months. The temporary log crib dam which is located at Lois river has been completed and the penstocks are being laid. Recently, crews which were working from both ends of the 5,800-foot tunnel broke through and thus completed boring operations. The lining of the tunnel is the next stage in the work.

The new machine room has been practically completed, and installation of machinery and piping is under way. The sole plates marking the base of the two 226-inch machines are being installed. Grinders are also being placed in position in the new grinding room which will contain 14 machines. The steel work on the addition to the steam plant is also finished. Considerable work is still to be undertaken, however, before the total amount of the extensive new machinery which has been ordered is installed in the building.

Blake, Moffitt and Towne, one of the largest organizations of its kind in the Western States, have been appointed distributors for the Powell River Co.'s newsprint in the western United States. In past years the company has sold its output chiefly in British Columbia, Australasia, the Orient, and South and Central America. The extent of the new sales campaign will be recognized from the fact that A. E. McMaster, general manager, has addressed letters to 600 publishers in the western states announcing the appointment of the new distributors. All of these 600 publishers are now regarded as prospective customers, and it is proposed to invade the United States market wherever railroad rates make competition possible with the Crown Zellerbach Corp., which up to now has held almost undisputed sway in the western states.

M. J. Scanlon

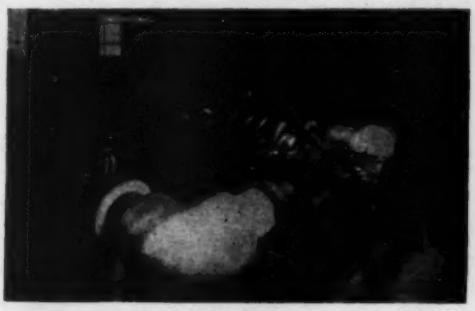
For the second time this year the Powell River Co., Ltd., has been bereaved of its president as a result of a stroke. M. J. Scanlon, president of the company, passed away last month at his home in Minneapolis from a stroke sustained a few hours previously. Dr. D. F. Brooks, pioneer of the Powell River Co. and predecessor of Mr. Scanlon, died following a stroke received last January. Like Dr. Brooks, Mr. Scanlon was a pioneer in the lumber industry of the Pacific Northwest. He was president of the Powell River Co. and was also president of the Brooks-Scanlon Corp. of Florida, and the Bahamas-Cuban Co. and the Brooks-Scanlon Lumber Co.

A. Goldberg, owner of two obsolete cruisers which he purchased from the United States Naval Department for junk, has sold one of these vessels to the Powell River Co., which proposes to sink the dismantled hull for a breakwater. Permission to complete the sale was only given by the Naval Department after consulting with the naval authorities of Great Britain, France and Japan because the vessel, although junked by the United States, was still capable of being made into a powerful fighting unit for any one of a number of smaller nations. Under the terms of the permission given to Goldberg, the vessel must be sunk within 60 days of its delivery at the Powell River plant.

Pacific Mills, Ltd., of Ocean Falls, are having an inspection cruiser built for the use of the company officials.

Warren
boiler feed pumps

BUILT to give steady, dependable service under widely varying plant conditions Warren boiler feed pumps hold their original efficiencies over a long period of time, have unusually low maintenance and repair costs.



2 Warren multi-stage boiler feed pumps, turbine driven, installed at the new power plant in the West Springfield yard of the Boston & Albany R. R.

Shafts extra heavy at impellers and bearings to prevent vibration and deflection, water passages designed to reduce end thrust to a minimum, liberal clearances prevent unnecessary wear on the case rings . . . these are a few reasons why Warren pumps stay on the job day in and day out, have the lowest possible pumping cost per year.

2 Warren boiler feed pumps working against 450 pounds pressure; one motor driven, one turbine driven, both operating at 3,500 r.p.m.

Centrifugal and reciprocating types for every service, write for Bulletins.

Warren
Steam Pump Company Inc. Warren Massachusetts
Agencies in All Principal Cities

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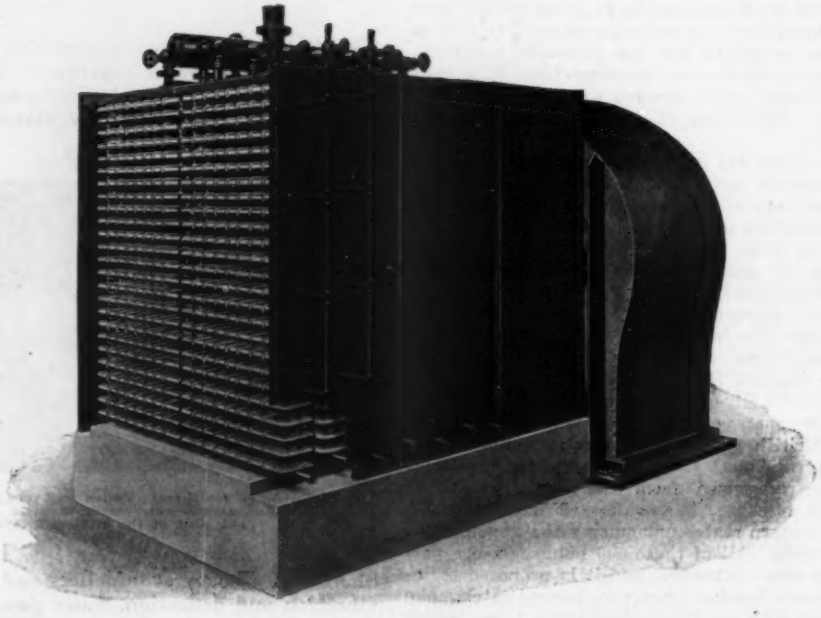
Stickle Blast Coil Heater or Economizer Will Dry Your Felts With Hot Air



STICKLE air cooled condenser maintains a vacuum of 10 to 15 inches on the return line of your paper machine, returns condensate to the boiler room as hot as it can be handled with a pump without the admission of cooling water. Will heat 1000 cubic feet of air per minute for every ton of paper dried per day, furnishing hot air in the pit to dry the felts and absorb the vapor under the dryers, making a direct saving of at least 15 per cent in steam consumed for drying the paper and ventilating the machine room. This can be done at a moderate cost. Are you interested? Complete plans furnished without charge.

Stickle Steam Specialties Co.
INDIANAPOLIS, IND.

AUTOMATIC STEAM CONTROLS
BLOWING THROUGH DRAINAGE SYSTEMS
COMPLETE LINE STEAM SPECIALTIES

❖ ENGLAND ❖

General Trade Conditions

Although the summer slack season has expired, conditions in the paper industry have not improved to any extent. Paper merchants have experienced rather dull times during the last few months, but printers are now a little more active in buying owing to the increased demand for printed matter, and a continued increase, particularly in demand for printed matter for publicity purposes, is expected this winter. There is also an increase in the consumption of the various classes of paper used for direct mail matter.

Reference was made last month to the campaign launched by the coated section of the Papermakers' Association some months ago. In turn the different classes of coated paper have been demonstrated by a well-planned scheme of publicity. The merits and advantages of art paper, chromo, enameled, art board, and boxboard have been explained, examples of treatment have been shown, and everything possible been done to force the sales. During the progress of the scheme, most makers have independently issued demonstration samples advertising their own brands.

As to general conditions in the trade, a few makers of export lines are workng to capacity, mostly on home orders, the most remunerative business being done with the popular brands of better class writing paper and fine printing paper and board. Esparto pulp board has to a large extent captured the market served before the war by the paste and triplex board.

Woodfree mills are having to meet severe competition at home as well as from foreign imports. Some of the importing agencies and merchants are offering specialized lines at attractive prices, against which it is difficult for some of the home makers to compete. The demand for business papers and printings has been lower these last few months than it has been for eight or nine years, and even the biggest producers are viewing the situation with some anxiety. The trouble is intensified by the fact that users are lowering their quality standards as well as reducing their consumption. Anxiety is increased by the fact that lowered standards so often remain low. This is exemplified by the fact that the handmade paper mills have permanently lost some of their ledger paper business in the downward grading process. Short time has been the rule in several mills belonging to the handmade sections, though there has recently been a better demand for handmade book printings.

Wrapping paper prices are a trifle easier, and most of the mills are just able to keep to full output, but few are booked ahead more than a week or two. It was recently pointed out that if makers could buy continental pulp as cheaply by comparison as the finished paper it would be more difficult for importers to bring in the tonnage which goes into the monthly import registers of the Board of Trade.

For a variety of reasons, there has been a great increase in the use by printers of what has come to be known as "out-of-the-way papers." A big percentage of these papers are printed on before being put to the use for which they are intended, but many thousands of tons of paper though printed on never find their way into the machine room of the general printer. Some paper is dealt with by firms which go in for specialized printing while other varieties are printed on by special machinery before they leave the works where they are produced. Regulations with regard to the wrapping of commodities have brought about a revolution in the production and printing of certain classes of paper. The Food and Drugs Act compels the grocer to wrap every separate portion of margarine or butter substitute in a paper on which is printed the word "margarine," and a large quantity of the greaseproof paper containing this one word necessary to meet the requirements of the law, arrives in this country from the continental mills.

Year's Business Considered Unsatisfactory—The Board of Trade figures for August show that business in the paper trade has been unsatisfactory throughout the year, for

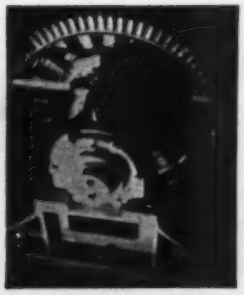
»»» THE CHOICE OF ENGINEERS

Powell Valves are made for nearly every service demand —water, steam, air, gas, or oil—for high and low pressures and temperatures. They are the choice of engineers who want the first installation to be lasting.

THE WM. POWELL CO., Cincinnati, Ohio

POWELL VALVES

THE APPLETON CLOSE-COUPLED JORDAN ENGINE



EVERY DETAIL of construction that contributes to better stock preparation has been considered in the development of the Appleton Close-Coupled Jordan. The experience of years of fine Jordan building and an intimate knowledge of refining problems and requirements find their full expression in this modern Jordan of high efficiency and accurate stock refinement. Appleton Jordans pioneered the use of anti-friction bearings on Jordans, an important feature in guaranteeing production of uniform quality, accurate control and better operation. The Appleton Close-Coupled Jordan takes full advantage of the precision of anti-friction bearings. It also has the advantage of having the motor mounted direct on the plug-shaft, an advancement in Jordan construction. A smoother, more effective power application is provided and the flexible coupling is eliminated. It is a compact, rigid Jordan, free from vibration—a Jordan of more profitable performance and accurate, uniform stock refinement. Investigate the Appleton Close-Coupled Jordan thoroughly. A folder explaining its many advantages will be mailed upon request.

THE APPLETON MACHINE COMPANY . . APPLETON, WISCONSIN

although the productive capacity of British mills has been increased during the past four or five years by about 20 per cent, the quantity of raw materials imported so far this year are less by nearly 28,000 tons than during the corresponding period of 1929. Unemployment in the paper trade is just about double what it was last year at this time.

The consumption of paper has not decreased, however, for import figures show a decline for the first eight months of this year of nearly 33,000 tons, of which printings and writings were responsible for 8,500 tons, which shows that the slight increase in consumption has been supplied by papers coming from abroad, and those mainly from European mills, for during the same period the paper received from Canada was 10,000 tons less than last year. The import of foreign paper has thus been a direct cause of unemployment among paper workers.

Increases have been shown in the imports of all paper except wrappings which show a decrease of a little over 7,000 tons, on which there is, of course, an import duty.

Our export trade shows a slight decline compared with last year, being 13,518 tons less. Nearly half of this decrease is accounted for by the serious depression of trade in Australia. Kraft mills on the Continent are showing anxiety as to what decision will be made by the Government next year in regard to the Safeguarding Duty on wrappings, which was imposed for five years as a trial. With a view to coming down to the level or slightly under the British prices, after the duty has been paid, kraft and other wrappings from the Continent are being sold to British buyers at less than cost. If the duty is continued there will naturally be a change in this state of affairs, for these tactics have only been carried on in the hope that the duty would be removed.

Value of Watermark Decreasing—It was pointed out recently that the watermark is decreasing in value as a means of advertisement and as a guarantee of quality, owing to the fact that the consumer has not the requisite knowledge of the papermaking industry to be able to distinguish between those marks that are of intrinsic value and those that are used purely for advertisement or trade protection purposes. Until quite recent years, some mills altered their dandy rolls and molds every year by the insertion of the year figures, so that it was possible by looking at the watermark to know in what year the paper was made. Except in isolated cases, this practice has now been discontinued, because its commercial value in the present day is very doubtful. Slight alterations are made however from time to time in the lettering on the dandy roll, which, while not apparent to the casual observer, give the papermaker himself evidence of the year of manufacture.

A. D. Little Awarded the Perkin Medal

The Perkin Medal, awarded yearly on a basis of a lifetime of achievement in industrial chemistry, by a committee composed of representatives of the five leading chemical societies, has been awarded for 1931 to Arthur D. Little, chemical engineer, of Cambridge, Mass.

Doctor Little is president of Arthur D. Little, Inc., of Cambridge. He was born in Boston 66 years ago, and was graduated from Massachusetts Institute of Technology. He holds honorary degrees from the University of Pittsburgh, Tufts College, and the University of Manchester, England. He is a member of several scientific societies and a fellow of the American Institute of Chemical Engineers, the American Chemical Society, the Society of Chemical Industry of Great Britain and the Alumni Association of M.I.T.

His achievements include important work in the fields of artificial silk and petroleum. He was chemical engineer and superintendent of the first mill in the country to manufacture sulphite wood pulp.

The new address of the main office of the Chain Belt Co., Milwaukee, has been changed from 736 Park street to 1600 West Bruce St. The address of the West Milwaukee works has been changed from 39th avenue and Orchard street to South 45th street and Orchard.

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IMMEDIATE STEEL FOR MAINTENANCE AND REPAIR

When something breaks . . . and steel is needed in a hurry . . . you can depend upon Ryerson for quick action. Complete stocks of all steel products, including:

Bars	Wire	Babbitt Metal
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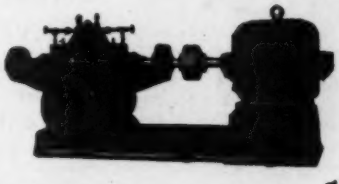
STEEL

LAWRENCE "VORTEX" CENTRIFUGAL PUMPS



A heavier, more rugged pump clear through

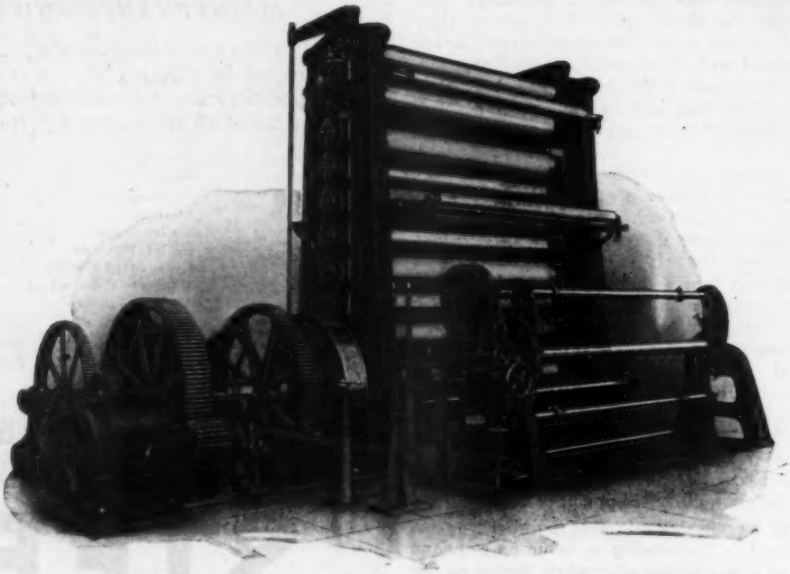
From suction end to discharge you will find LAWRENCE "VORTEX" PUMPS built to stand up under the severe conditions of the paper industry. Compare it, part for part, with pumps you have used in the past. Unless you are already a LAWRENCE "VORTEX" user, you will be strongly impressed by the fact that each part is heavier, more rugged, and is designed and built equal to the job in your plant. A pump for every purpose, for pumping any liquid—pulp stock, white water, acids, etc.

Write for Bulletins.

LAWRENCE PUMP & ENGINE CO.

P. O. Box 70 LAWRENCE, MASS.

HOLYOKE



PRECISION

HOLYOKE Precision is really the result of continuous contact for 65 years with the big-and-little problems of the mill. To analyze exactly the special needs of the paper maker and to build *precisely* to his requirements,—that is the basis of HOLYOKE Service.

HOLYOKE invites you to consult with their Engineers when planning the purchase of Paper Mill or Wood Pulp Mill equipment. It pays to buy that extra percentage of experience with every dollar you spend.

Write HOLYOKE MACHINE COMPANY, HOLYOKE, MASS., Manufacturers of Super Calenders, Platers, Cotton and Paper Rolls, Washing and Beating Engines, Wood Pulp Grinders, Barkers, Chippers, Rag and Paper Dusters, Rag Cutters, Hydraulic Pumps and Presses, Hercules Water Wheels and Governors.

The HOLYOKE MACHINE COMPANY

FOUNDED 1863

❖ NEW ENGLAND ❖

Industry Shows Indications of Improvement

There are a few indications of better conditions in the New England paper industry. They are neither very promising nor very many, but are more significant of some change for the better than anything noted yet. The price of kraft paper has strengthened in this market. It is understood that there is no longer a 3.25c delivered quotation, that 3.50 and 3.62½c delivered are as low as any outside or New England mill will do and that some have boosted their quotations from 3.50 to 3.75c delivered. In the paperboard market the price of $30 and $32.50 which has governed the situation since the last cut seems fairly stable and on folding boards the trend seems slightly firmer despite the continued strong competition of western patent coateds.

In the meantime, the newsprint market will certainly not be greatly aided by the early production of some 260 tons more or less of addition newsprint by the Maine Seaboard Paper Co., at Bucksport, Me. This ultramodern plant has been nearly completed. It will use some 100 million kilowatt hours of power supplied by the Bingham plant of the Central Maine Power Co., controlled by the same interests which own the paper company.

The American Writing Paper Co., it is learned, will shortly open the George C. Gill division in Holyoke, employing about 140 additional men.

Among the converting companies the envelope interests apparently have suffered less from the depression than other sections of the industry. Here and there evidences are obtained that these companies are planning for a big year in 1930. In one case, the Lockwood Envelope Specialties Co. has actually started a new plant making specialties in cards, envelopes and stationery at this time.

Mills Improving Plants

The Associate Mills of Holyoke, Crocker McElwain Co., and Chemical Paper Manufacturing Co., have been exponents of modernizing their equipment during periods of slack business, thus providing the least interruption to normal operations in periods of better business and also providing employment for labor during the quiet times. They have utilized this period to the full for these purposes.

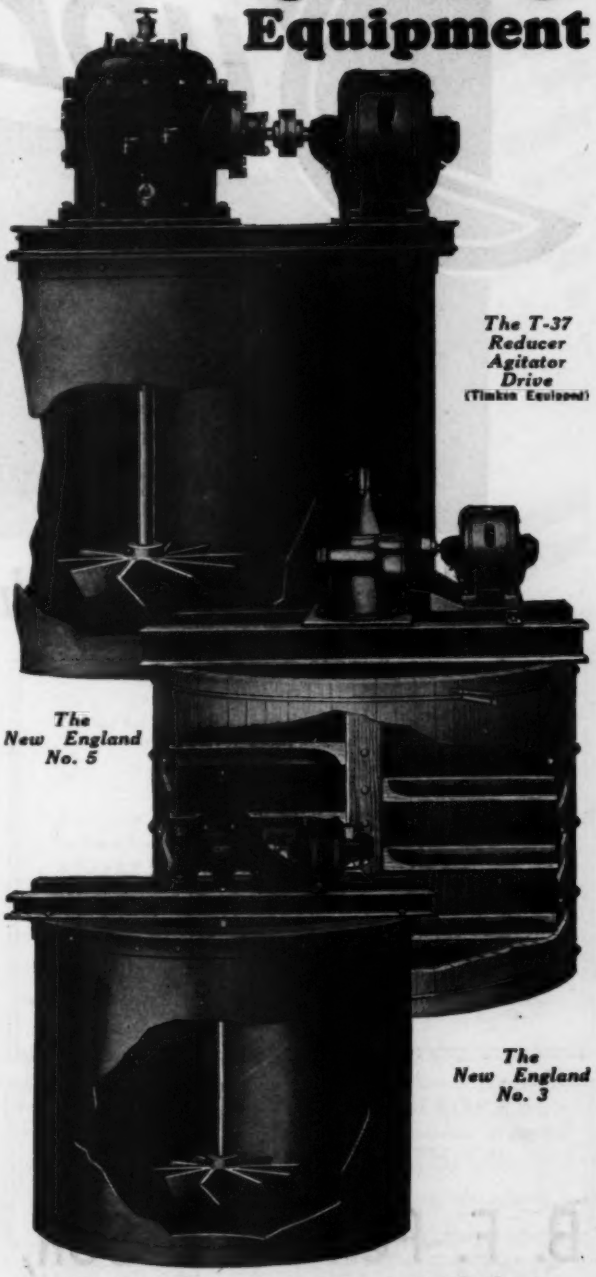
It is also learned that the Rising Paper Co., of Housatonic Mass., which has made a complete overhauling and remodeling of its entire plant, has constructed new water wheels built by Rodney Hunt Machine Co., of Orange, Mass. Rising Paper Co. has furthermore installed new Jordans and new beating capacity and its machines have been electrified. The company feels that it is in an excellent position now to benefit by any improvement in general business conditions.

Several prominent paper manufacturers were selected by Governor Frank Allen of Massachusetts for his State Wide Committee on Unemployment. These included Philip R. Allen of Bird & Son; William F. Whiting, former Secretary of Commerce, and president of the Whiting Paper Co., Holyoke; Winthrop M. Crane, of Crane & Co., Dalton, and Alvah Crocker, president and treasurer of Crocker Burbank Co., Fitchburg. The committee includes industrialists, bankers, labor leaders and others who will act to provide employment by all means within their power. Staggering of employment is practically an impossibility in the paper industry or any continuous operation.

The financial condition of leading New England paper companies including those that have made public their earnings statement has not been as bad as those in other lines. Where dividends were being paid no suspension of such were noted. The S. D. Warren Co. declared its seventh quarterly cash dividend of $1.75 upon the common stock payable next month. Many companies registered sharp declines in the

for fillers—sizes—colors use

New England Agitating Equipment



The T-37 Reducer Agitator Drive (Timken Equipped)

The New England No. 5

The New England No. 3

Ready to put to work—strong rugged units designed to operate with maximum efficiency and economy. Send for complete details and specifications.

The New England Tank & Tower Co.
Everett, Mass.
30 Church St., New York

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Supreme

A product with a background—

The superior finishing qualities of Perkins Calender Rolls are the natural result of the longest and broadest experience in this highly specialized field of manufacture.

No CALENDER *can be better than the* ROLLS *in it*

Perkins roll shop is the largest in the world.

Perkins organization is always prepared to build your rolls to meet exactly your production requirements.

Perkins refills and remakes include the rolls of any manufacture, domestic or foreign, for any application in the paper industry.

B. F. Perkins & Son, Inc., Holyoke, Mass.

TRADE MARK REG. U.S. PAT. OFF.

Cotton Rolls
Paper Rolls
Embossing Rolls
Chilled Iron Rolls
Granite Press Rolls
Glassine Supercalenders
Web Supercalenders
Friction Calenders
Embossing Calenders
Sheet Calenders
Platers
Mullen Paper Testers
Tensile Testers
Ventilating Fans
Rag Cutters
Stock Cutters
Paper Dampeners
Bleach Ejectors

unlisted market. Among these were noted Parker Young Co., of Lincoln, N. H., a few shares of which preferred stock sold in Boston at 20, a decline according to the auctioneers of 63 points from the last sale.

C. H. Sprague & Son, large Boston coal shippers who have actively entered the paper mill market of northern New England through their discharging piers and pockets at Searsport on the Bangor & Aroostook R. R., have acquired storage space for 15,000-20,000 tons of coal at Mystic Wharf, Boston, on the Boston & Maine R. R., their first direct entrance into the territory served by that railroad. They are to maintain a stock of coal here for spot shipment to any point in northern New England served by this carrier and its connections. They are one of the two largest shippers of tidewater coal to New England.

Traffic Items

The Main Central R. R. is making every effort possible to induce a larger movement of wood pulp over its lines. The movement is being stimulated of late by an effort to divert tonnage from the Grand Trunk to the Central new and enlarged wharfage property at Portland. At first, a rumor was current that the switch on pulp unloaded at Grand Trunk piers would not be absorbed. However, until July 1, 1931, the Maine Central R. R. will absorb such switching charge on pulp moving on a line haul to mills on its rails. The Grand Trunk will do the same.

New England mills have been assured that any changes in the base rates on paper from New England to points in southern classification territory, or in the opposite direction, will eventually be established on a basis not higher than 27½ per cent of first class, for carload movement.

New England Freight Association announced a change in the rate on wood pulp, from Portland, Me., to Montville, Conn., a reduction from 22.50c to 19.50c.

The association also announced a cancellation on existing commodity rates on paper cones or tubes for the textile trade from New England points to points in the south, and the application of sixth class for 30,000 lb. minimum carloads.

Equalization in rates on shipments of wood pulp from Baltic to North Atlantic ports in the United States has been established by all steamship lines in closing their 1931 contracts according to steamship companies in Boston. Conferences between shippers and steamship companies have resulted in this restoration of the parity. Last year a differential of five cents a ton was given to the ports of Baltimore and Newport News as compared with Boston. At the time the question arose it was found that no uniform practice existed. The five cent differential was defended by the steamship companies on the ground of favoring differences in stevedoring practices.

In Portland, Me., where the heavy import of wood pulp, pulpwood, and china clay traffic has compensated for the loss of other business this year, and given the city a normal import movement, the labor unions themselves protested against a new harbor code pertaining to piloting and docking because they argued it would drive business from the port.

The Massachusetts Department of Labor and Industries reporting for September found in 27 paper and pulp mills that the number at work was practically the same as for August and the number on full time increased slightly to 3,202 out of a total of 5,763 at work. Of indirect interest are the figures for 51 printing plants which reported a gain both in numbers at work and those on full time.

Crocker Burbank Co., Association of Fitchburg is making its papers available to the New England trade for the first time in many years. Clarke & Co., of New York, selling agent has negotiated a sales agency in Boston with Carter

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Paper, heaviest yet most fragile product needs care and protection in shipping. Whether you use cases, skids or cartons Signode Tensional Steel Strapping will reinforce your shipments and hold them together under pressure—safe and secure to destination.
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MANUFACTURERS OF
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LARGEST SPECIALISTS IN AMERICA ON
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E. F. RUSS COMPANY 287 Atlantic Avenue BOSTON, U. S. A.

"For Better Service" use the HOLYOKE wire
Decreases Cost Increases Production
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Manufacturers of
Fine Fourdrinier Wires, Cylinder Covers and Dandy Rolls
Water Marks A Specialty
HOLYOKE MASSACHUSETTS

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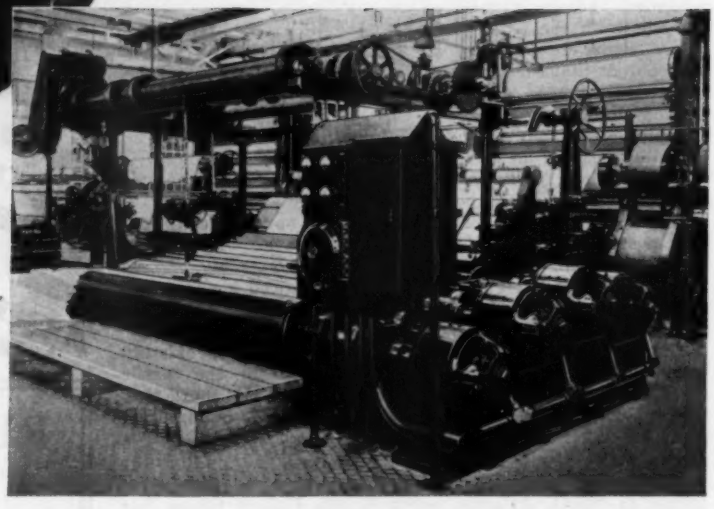
JOHN F. FERGUSON
Complete Pulp & Paper Mills, Investigation of New Enterprises, Special Heat & Power Applications, Hydro-Electric Developments, Steam-Electric Power Systems, Sectionalized Paper Machine Drives.
Analysis, Design, Construction, Operation Efficiency
Holyoke, Mass Monadnock Bldg., CHICAGO, ILL.

One-Hand Control and Better Rolls

One rheostat controls the speed of all drums after they have been regulated to suit the grade of paper.



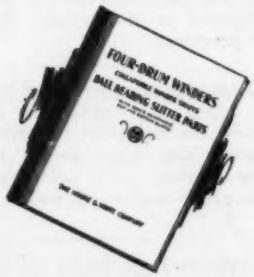
M & W Four Drum Winder with Electric Drive, in mill of West Virginia Pulp & Paper Co., Williamsburg, Pa.

Modern progress in paper making is well illustrated by the precise, yet extremely simple, control of the M & W Electric Winder Drive.

Each drum is driven by a separate DC motor. For a change in paper, slight changes may be necessary in the individual controller settings, to get the right ratio of pull between the "constant" and "variable" drums. This is done when the rolls are turning very slowly under the influence of the main controller. Once the individual controls are set, the entire group is brought to speed and operated as a unit by the main controller.

Speed may be anything from zero to the maximum—and is perfectly steady at any speed. Roll hardness is automatically reduced toward the outside of the rolls.

This new trouble-saving electric drive is fully described in the new booklet on M & W Four-Drum Winders. Shall we send you a copy?



Yes, we still build belt-driven Winders—and good ones! But we consider the Electric Drive a long step forward.

THE MOORE & WHITE COMPANY

Established 1885

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Rice & Co., who will stock and sell throughout the New England states three lines: Elseca Book, a super-calendered paper, Saturn Book, wove and laid antique, and Hermes Book, an English Finish stock.

State Safety Engineer Proposed

A safety engineer for the State of Maine is the proposal which has been made and which will undoubtedly be put into effect along with an employment bureau for seasonal labor. Both these matters are of interest to the paper industry. The Pine Tree State has had no adequate bureau to deal with industrial accidents. It is believed that an engineer with a competent staff will be able to collect and tabulate data, spread the knowledge of safety among mills in each industry and gradually obtain an enlightened attitude and a concomitant reduction in the insurance costs.

The employment bureau will be of very great value. Since the tightening of restrictions against the temporary importation of Canadian woods labor, paper mills have been severely handicapped in their woods operations. It is for such seasonal labor that the bureau will provide the greatest service.

Edward B. Dik, formerly an official of George W. Wheelwright Paper Co., North Leominster, Mass., has joined the organization of Percy D. Wells, paper merchants of Boston.

William Dwight Judd

William Dwight Judd, president of the Carew Mfg. Co. and Hampshire Paper Co., South Hadley Falls, Mass., passed away October 5 at the age of 62, having been in ill health for some months.

Mr. Judd began his experience in the old Wauregan mill, now a division of the American Writing Paper Co., Holyoke. He joined the Carew company in 1897. He was generally conceded a leader in the industry and was equally well versed in the problems of sales and manufacturing, giving much time to both ends of the business. His wife survives him.

NEW YORK CITY

An optimistic outlook for improvement in the wood pulp industry marked a discussion of members of the Association of American Wood Pulp Importers at a special meeting of the association following a luncheon in the St. Nicholas Club, New York, on October 2. George W. Oliphant, of Castle & Overton, Inc., president of the association, said the discussion had special reference to present business conditions and the outlook for the future. He said that, while the industry was "scraping on the bottom" now, the tendency was upward and toward improvement regarding increased demand, although there was no indication at present for an improvement in prices.

International Passes Dividend

Directors of the International Paper and Power Company passed the quarterly dividend on the Class A common shares of the company payable November 15, while the International Paper Company, a subsidiary, passed the quarterly dividend due on its common stock on the same date. In a brief statement the directors said:

"Although the expected growth in the earning power of the International Paper and Power Company's power developments and the increasing efficiency of its paper mills have been realized, they have been largely offset by the adverse effect of the present business depression on the prices and volume of the company's pulp and paper sales during the last six months.

"As the outlook is still uncertain, the directors have decided that under current business conditions the omission of

Jones

A name that has won a world-wide reputation through 75 years devoted to paper-making progress

A NEW SCREEN

LARGER CAPACITY,

CLEANER STOCK

Our New Leith Walk Inflow Screen

WE take pride in now offering our redesigned Leith Walk Inflow Screen in a larger size. Its sturdy construction, its elimination of floating and heavy dirt and the ease with which it may be cleaned are of interest to every paper maker.

Following are the most important of its many mechanical features: protected anti-friction bearings; discharges for convenient spouting to head box; adjustable stroke indicators; heavy and floating dirt discharges; counter balance springs (can be inspected while running); improved drum seal; enclosed drum drive and vibrator mechanism running in oil.

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"LEADIZED"

A continuous protective coating, inside and outside—Not a lining

Application of the "leadizing" patented process to pipe made of any wrought material makes it resistant to all acid solutions used in pulp and paper manufacture.

Water pipe lines that are "leadized" remain free from slime. Friction is reduced in "leadized" paper stock lines.

A few of our installations:

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Brown Paper Co., West Monroe, La.
Bryant Paper Co., Kalamazoo, Mich.
Combined Locks Paper Co., Appleton, Wis.
Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis.
Kalamazoo Paper Co., Kalamazoo, Mich.
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.
Nekoosa-Edwards Paper Co., Port Edwards, Wis.
Paul Sorg Paper Co., Middletown, Ohio
Thilmany Pulp & Paper Co., Kaukauna, Wis.

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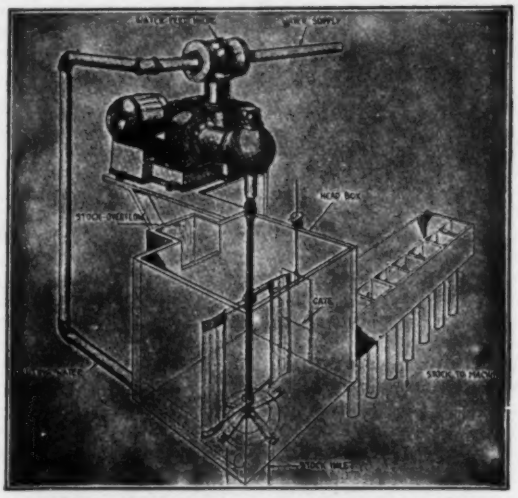

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A simple, continuous method of smoothing out consistency variations by maintaining stock within a gross variation of 15% either side of the desired consistency—provided stock is not lighter than 2½% nor heavier than 7%. Red, white and blue lights, working singly and in combinations, signal whether stock is very light, a little heavy or very heavy. Built for years of service, with minimum attention and maintenance.

Signal lights located so that operator is aware of stock condition at all times.

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Every mill superintendent should have it in his files because it points the way to economies wherever there is cleaning to be done, such as cleaning fourdrinier wires, washing felts, screens, and other mill equipment.

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Industrial Cleaning Materials and Methods

the common dividend is conservative and in the best interests of all stockholders."

Quarterly dividends of 60 cents a share had been paid on the International Paper and Power Company's Class A common stock since the company's formation late in 1928, and on the common shares of its predecessor company and present subsidiary, the International Paper Company, since August 15, 1927. From August 16, 1926, to May 16, 1927, respectively, four quarterly dividends of 50 cents a share were paid, the first common dividends to be paid by the company since 1899. The year 1927 was the last in which the common and preferred dividends of the International Paper Company were fully earned.

Walter Braun

Walter Braun, head of the Paper and pulp concern of Walter Braun Company, Inc., of 41 East Forty-second street, New York, died on October 2 in Mount Sinai Hospital of poisoning resulting from a carbuncle on his upper lip. He was ill only three days.

Mr. Braun is survived by a widow. His company represents in the metropolitan district the Defiance Paper Company, the Gould Paper Company, the Sherman Paper Company, and other well-known paper mills.

W. Allan Lindsay, general manager of the Tarentum Paper Mills was in New York recently and in accordance with his expansion policy, has opened an office at 11 West 42nd street for the convenience of Tarentum Paper Mills' eastern customers. John R. Ryan is in charge. Telephone Pennsylvania 9334.

The James P. Heffernan Paper Company has moved its offices from 25 Water street to 11 Broadway, New York.

The wide circle of friends in the paper and pulp industry of O. F. Swanson, pulp sales manager of J. Andersen & Company and the Pulp and Paper Trading Company, of 21 East Fortieth St., N. Y., will be pleased to learn that he is on the road to recovery following an operation in the Brooklyn Hospital on October 11.

Announcement is made of the withdrawal of E. Frost and M. Kay from the Sterling Mill Supply Company, Inc., packer of and dealer in paper mill supplies of 146-148 Wooster street, New York, and of the formation by Messrs. Frost and Kay of the Interstate Mill Supply Company, Inc., with offices at 1440 Broadway, New York, to deal in all kinds of paper-making raw materials. The Sterling Mill Supply Company, Inc., will be continued as heretofore by Nicholas J. Guariglia and J. J. Patricof.

The Analomink Paper Company, of North Water Gap, Pa., has given the exclusive sale of the products of its mill to Parsons & Whittemore, Inc., paper and pulp merchants of 10 East Fortieth St., New York. Henry E. Lindquist, of the domestic mill department of the Parsons & Whittemore organization, will have charge of Analomink sales.

Second Arc Welding Competition

The Lincoln Electric Co., Cleveland, Ohio, announces that it will sponsor a second arc welding prize competition with 41 prizes totaling $17,500. The papers which will treat of the utilization and advantages of arc-welded construction will be judged by a jury composed of the Electrical Engineering Department of Ohio State University under chairmanship of Professor Erwin E. Dreese, head of the department. The first prize will be $7,500.

The purpose of this second competition is to stimulate designers and engineers in every line of industry to think of the manufacture of their own products by the use of arc welding and to increase their knowledge of the feasibility of its application.

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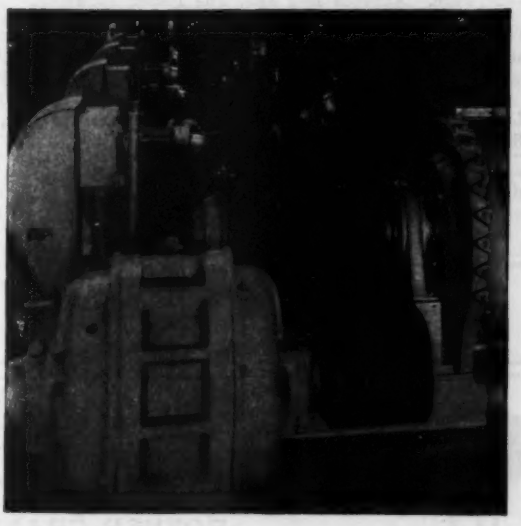
ACCLAIMED BY EVERY INDUSTRY

"The Ultimate in Efficient Transmission"!



In the short space of five years, the *Texrope Drive* has been accorded extraordinary acceptance in every branch of industry. So outstanding is its efficiency in every extreme of service—so marked its dependability and economy—that the number of *Texrope* installations are already well past the 80,000 mark, and increasing fast.

Genuine Texrope Drives are positive, silent and slipless. Short centers, besides requiring a minimum of space, result in a maximum utilization of power. Being flexible, they do not transmit vibration but are shock-absorbing and a protection for the motor. But most important of all, it is practically impossible for a *Texrope Drive* to break down. Even in the event of one or several belts failing, the machine can be operated with the remaining belts until it is convenient to make a replacement.

As a licensed manufacturer of *Genuine Texrope Drives*, we are equipped to render a complete engineering and supply service to all users of transmission equipment. Write us for a bulletin.

T. B. Wood's Sons Co.,

Power Transmission Machinery

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LICENSED MANUFACTURER

WANTED—Cameron Slitter and Rewinder. Model 10 Type 10—42" wide. Address Box 185, The Paper Industry.

WANTED—IDEAS for improvements in paper mill machinery, equipment and processes by large manufacturer of paper mill machinery with extensive designing, engineering and manufacturing facilities. Cash in on your ideas for new devices or betterments for present equipment. Write, in confidence, to Box 186, The Paper Industry.

WANTED—Coating machine, oscillating brush type, to handle 54" or more. Suction blanket inclined bed preferred. Complete festoon dryer 200 ft. long, with turn around and one reel. Address Box 187, The Paper Industry.

It Pays to Advertise Opportunities in this Opportunity Section

Pickles' Patent Automatic Steam Regulator FOR Paper Making Machines

Which absolutely control the drying of the sheet. Installed on sixty days' trial

W. F. PICKLES **Buckland, Conn.**

Roeper Electric Hoists

For lifting paper rolls, removing calender rolls or raising Fourdrinier wires, use ROEPER Type "R" Electric Hoists—With or without Trolleys—Speeds up to 40 feet per minute—Send for Bulletins.

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Lessons in Paper Making

By **Harry Williamson**

One of the greatest funds of information on paper making ever published for the mill man.

Part I contains the first twelve lessons and two separate articles—A Problem in Head Box Control and The Degree of Hydration.

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A 48-page pamphlet made up of practical helps, many of which have meant considerable savings in paper and pulp mills. Of tremendous value to the practical man. Price 50c.

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❖ OHIO ❖

Annual Meeting of Miami Valley Superintendents

The first fall meeting of the Miami Valley Division, held at the Butler County Country Club, Hamilton, Ohio, October 18, went off with a bang! There were 82 members and associates present which included the executive committee and officers of the National Association.

The day was one of those rare autumnal kind, bright and crisp, that just seemed to put the old pep and enthusiasm right into the heart of nature itself.

Representatives of the Black-Clawson Company and Shartle Bros. Machine Company were on hand to greet members of the executive committee as they arrived. In the morning they were escorted through the plant of the Black-Clawson Company and saw, in the making, machinery which is of prime importance to the paper industry.

A trip was then made to the Hamilton mills of The Champion Coated Paper Company. Experienced paper men were provided as guides and the various groups, comprised of four men each, were taken to all corners of the mills.

The Champion organization takes great pride in its mills and it has a right to. Efficiency, cleanliness, and up-to-the-minute equipment combine to make this mill one of the most modern paper manufacturing plants in the country.

At twelve o'clock the members of the executive committee were escorted to the Hamilton Club where they were again the guests of The Champion Coated Paper Co. Expressions of thanks were given "Champion" for the hospitality and kindnesses shown to these visitors.

Immediately after luncheon the executive committee motored to The Butler County Country Club to meet the members of the Miami Valley Division, who were gathering early for the Second Annual Golf Tournament sponsored by The Black-Clawson and Shartle Brothers Companies. Prizes were given for the best scores.

New Officers

At six o'clock the business session was called, the regular routine of business transacted, and the following officers elected and installed to perform the duties of their respective offices for one year: chairman, Marshall L. Barker, The Beckett Paper Co.; first vice-chairman, Royal H. G. Smith, The Gardner & Harvey Co.; second vice-chairman, Tom Harvey, The Gardner & Harvey Co.; third vice-chairman, Howard E. Teter, Mead Pulp & Paper Co.; sec'y-treas., Valentine Frederick, Jr., The Beckett Paper Co.

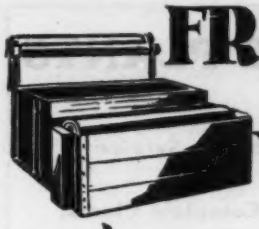
The next meeting will be held at the Florentine in Middletown, Ohio, on Saturday, November 29.

Response from President Magnus

H. T. Randall, retiring chairman, asked Carl Magnus, president of the National Association to say a few words and in a brief response he said: "Mr. chairman and members of The Superintendents' Association, I did not come prepared to speak in a formal way, but in a few words I will say it is a privilege and pleasure for me to be here and meet so many old acquaintances and make so many new ones, and on behalf of the officers of the National Association and the members of the executive committee I speak our appreciation.

"Along with entertainment and enjoyment of the nature which is provided tonight, we as superintendents must think also of the more serious duties connected with our obligations. With the general conditions in business today, and particularly in the paper industry, we must share our knowledge and reasoning, or for what other reason should we as an organization exist? Our purpose is to get together, share our knowledge and swap experiences. That is a serious job, more so now than ever before, and we should do the best on every hand. Our association as a whole is actively at work in a good spirit, and we must not forget as individuals the work required of us."

A general get-together followed and at eight o'clock an elaborate dinner of roast duck was served, an orchestra was

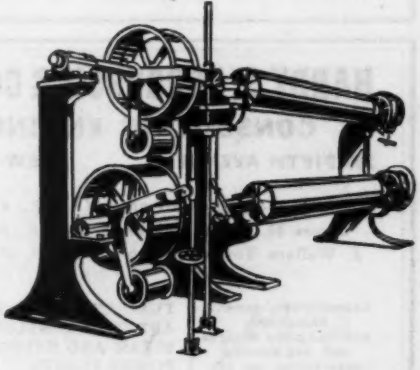


FROM VATS TO WINDERS

Nothing else on a paper machine is subjected to the punishment the felts are called upon to withstand.

No felt, however good, ever serves for any great stretch of time, altho Orr Felts have demonstrated their ability to wear appreciably longer than felts they have supplanted.

Try Orrs. With them you will obtain maximum water removing service and an extra measure of endurance that will surprise you.



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Arthur D. Little, Inc.

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30 CHARLES RIVER ROAD CAMBRIDGE, MASS.

on hand, and entertainment of singing, dancing, and humor was provided.

Mr. Randall expressed thanks to the hosts for their munificence which was responded to by Allan Hyer who stated it would be a great pleasure to entertain again next year at the annual meeting.

Four Companies to Merge

Four associated companies identified with the Paul A. Sorg Paper Company will merge into a single corporation, if the present merger plan before the stockholders of the firms is approved. Full opinions are expected to be reached by November 15. If the merger is completed, it will go into effect January 1. It will have a stated capital of $3,450,000.

Companies affected by the plan are the Paul A. Sorg Paper Co., the W. B. Oglesby Paper Co., the Frank A. Smith Paper Co., and the Paul A. Sorg Realty Co.

The Sorg Company and the Oglesby Company have been under the same management for the past 13 years, the other two since their organization. Efficient and economic operation of the plans will follow since they are associated and some operations already have been joined.

The Paul A. Sorg Paper Co. will change its name to the Sorg Paper Company and will acquire assets of the remaining companies all of which are incorporated under Ohio laws. Capital structure will be of authorized 30,000 shares of six per cent cumulative preferred stock of $100 par value, of which 17,500 shares will presently be outstanding, and 30,000 shares of common stock without par value of which 17,000 shares will be outstanding. The preferred is callable at $110 a share and accrued dividends.

Tearing Tests for Paper

Since paper is anisotropic (exhibiting different properties when tested in different directions) it is necessary to make two sets of tests on each sample, one to ascertain the properties of paper in the machine direction and the other to determine them in the cross direction. Paper in general is stronger in the machine direction than in the cross direction. T.A.P.P.I. has defined the direction tested as that at right angles to the line of rupture so as to conform to the direction of the fibers which resist the rupturing stresses. Except for the tearing test this definition has occasioned no confusion. But in the case of the tearing test there is a rather widespread custom of designating the direction tested as that along which the tear takes place, which is just opposite to the practice in connection with all other strength tests. A discussion of directional designation and a chart showing the correct manner of cutting test strips were prepared by the Bureau of Standards at the request of the secretary of T.A.P.P.I. and it will be published as a part of the proceedings of the fall meeting of the association.

Dr. Arthur St. Klein Joins Publishing Firm

It is announced in the **Papier-Zeitung**, of Berlin, in the issue of October 18, that Dr. Arthur St. Klein, who has for 30 years been a contributor to its pages, and to **Zellstoff und Papier** since its foundation, has become a partner and manager of the Carl Hofmann Publishing Company, Berlin, as of October 1, 1930. He will be second in charge of the various publications of the firm in association with Prof. Paul Hofmann (a son of the late Carl Hofmann) who is a lecturer on philosophy in Berlin University. Siegmund Ferenczi, who has been an employee of the firm since 1894, retains his position as editor of the publications.

LABORATORY Control, by means of precision optical instruments, will enable you to improve your product and maintain uniform quality. Write for information on instruments for the paper industry.

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630 St. Paul St., Rochester, N. Y.

RHOADS TANNATE WATERSHED LEATHER BELTS

This Kind of Belt Service . . . Pays Dividends

BACK in August, 1925, the *10-inch* double Tannate Watershed Belt pictured above was installed in a mid-west paper mill. It drives a Fourdrinier drier on the floor above. The belt is still in good condition and giving splendid service.

Previous to the Tannate, *12-inch*, 8-ply rubber belts were used. These slipped badly, especially when starting, and lasted only about eight months.

The Tannate Belt cost about three times as much as the rubber but has already lasted nearly eight times as long. Against the extra first cost of the Tannate we may now credit:—

The cost of seven rubber belts.
The cost of installing the seven.
And decreased production that may have been caused from slippage and shutdowns.

Plus the "peace of mind"—*the satisfaction* of having a belt that runs and runs on a hard drive without trouble or extra care.

Such belt service helps to bigger profits.

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PATENTS PENDING

THE MODERN TOP ROLL

gives you a stone face that you can turn to advantage in any top position, for any grade and weight of paper, without pick-up or sticking. Stonite is a special composition of quartz, feldspar, and ebonite. It is as hard, as durable, as smooth, and as porous as granite. And as Stonite is applied to a metal body, a Stonite roll can be made in any desired weight. Or you can have Stonite applied to a present metal body. Stonite performance in many leading paper mills has already established its superiority. Therefore, you should know all about Stonite now, to keep abreast of the industry. Write to us or our nearest representative for full information.

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EXCLUSIVE MANUFACTURERS OF STONITE ROLLS

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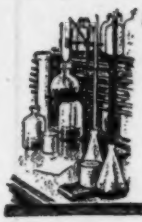
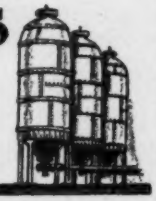
W. E. Greene Corp., Room 4004, Woolworth Building, New York City; R. W. Holden, 10 South LaSalle Street, Chicago, Ill.; H. G. Sperry Co., 415 Call Building, San Francisco, Calif.; A. G. Center, 124 West Main Street, Chilton, Wis.



Technical Developments in the Paper Industry



Domestic and Foreign

The following abstracts are of the latest developments found in the foreign press and the domestic and foreign patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

Preparation of Sulphite Liquor

THE author is concerned with a discussion of the present status of knowledge regarding the technology of the preparation of sulphite liquor. A brief review is given of the history of the process and the basic principles on which it rests are also briefly described. Attention is paid to the relation between the concentration of free sulphurous acid in the liquor and the concentration of sulphur dioxide in the burner gases and the temperature of the irrigating water. The chemical reactions on which the sulphite process is based are also outlined. The author concludes with the statement that the sulphite process is to-day the cheapest means for digesting wood. The sulphite liquor is represented as approximately four to five per cent of the total cost of making the pulp. The author does not think well of the processes of digesting wood which are based upon the use of nitric acid or chlorine. Dr. H. Kirmreuther, Der Papier-Fabrikant, 1930, pages 449-451.

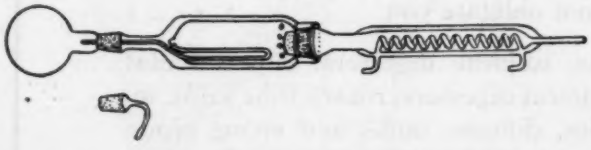
Is Bagasse Suitable for Papermaking

THE general properties of bagasse and its suitability as a papermaking raw material are discussed. The conclusion reached is that bagasse will play an important role in the near future. The quantity of bagasse regularly available is so large that it can supplant a good deal of the wood now used for papermaking purposes. Bagasse, moreover, yields a pulp whose fiber properties are very much like those of the fibers in pulp obtained from coniferous woods. Reifegerste, Wochenblatt fuer Papier-Fabrikation, 1930, number 25A, pages 45-47.

Resin-Fat Determination in Pulp

THE old methods used have the disadvantages of the inflammability of the solvent employed, and the great amount of time required. It has also been difficult to obtain results which agree. An extraction method was devised in which the apparatus shown in the accompanying illustration was employed.

The Sohlet apparatus, as shown, is provided with a double acting condenser which makes a ground-in glass-to-glass,



absolutely tight joint with the extractor. The apparatus is provided with an interior vessel of utilizable content equivalent to 400 cc., provided with a siphon tube and washed around by the vapors of the solvent. A 20-gram sample of pulp is used for making the test. Cooling water enters the apparatus at the top. From two to four hours are required for making the test and obtaining an extract which does not change weight when dried in a drying chamber at a temperature of 95 degrees C. The solvent dichloromethane has been found to be excellent for this purpose. This has a boiling point of 42 degrees C. and is a better solvent for resins and fats than ether. Dr. K. G. Jonas, Wochenblatt fuer Papier-Fabrikation, 1930, number 25A, pages 97-98.

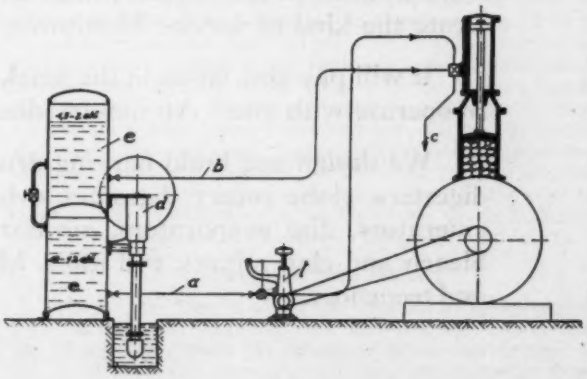
Latex Paper

THE use of rubber latex as an addition to the paper stock in the beater for the manufacture of latex paper or paperboard has appeared to be uneconomical for the reason that the valuable and expensive rubber latex is partially lost in the subsequent working up of the stock. This disadvantage is removed by means of a process, which is patented by C. Hisgen, A. G., Worms-on-Rhine, Germany in German Patent No. 486,461. This process calls for the impregnation of the pulp with the rubber latex, the mixture being then centrifuged or pressed, and thereafter dried. This impregnation can be carried out in any suitable container or vessel or in the edge runner mill (kollerganag). The important details in the process are the recovery of the rubber latex which is pressed out of the impregnated stock and the drying of the latter.

The following is an example of how this process can be carried out. One kilogram of the concentrated rubber latex is mixed with one-third to one-half part by weight of water and the latex is allowed to swell up. After a period of one to two hours has elapsed, the rubber latex is further diluted by the addition of one kilogram of water. Vegetable or animal glue may be added to this solution, for example, milk of rosin, which is diluted with the same or larger quantity of water, or gelatine or bone glue may be added in the concentration of 25 parts by weight to one liter of water. Finely divided asbestos, micro-asbestos, in the proportion of 20 to 25 grams per kilogram of the solution, may also be added to the latter. This is specially useful in the manufacture of paperboard for it renders the same more flexible.

Automatic Control for Magazine Grinders

THIS article is concerned with various automatic methods for controlling magazine grinders. One interesting method is shown in the accompanying illustration. This method depends on the use of water, and three systems for the



flow of the water are provided. First, there is the introduction of the water for the backward and first forward movement of the piston; second, the introduction of water under pressure for producing pressure of the logs against the grindstone, and third, there is the line for removing the water out of the pockets. In the figure, the water under pressure is shown in the line (a), the water that effects control in

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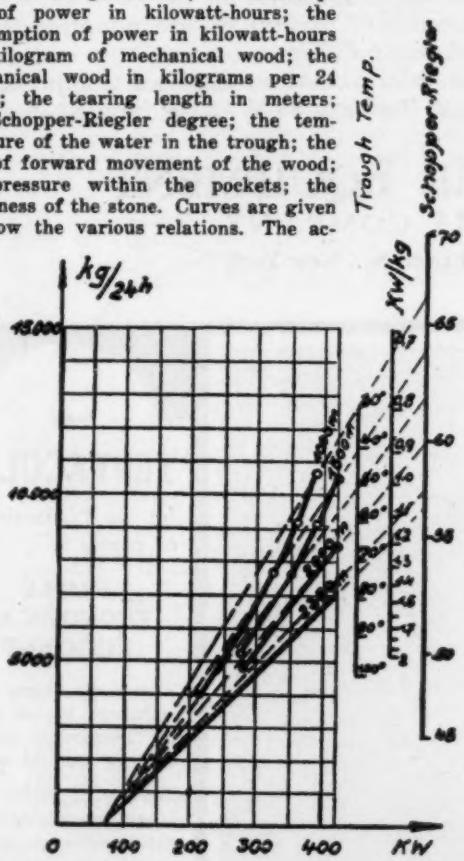
the line (b), the run-off (c), the pressure pump (d), the air vessel (e) and the regulator (f).

The water under pressure is compressed to about ten atmospheres by the pump and pumped into the air vessel, which is divided into two parts, as shown. A portion of the water enters the upper chamber through an overflow valve, and in the upper chamber the water is only under two to three atmospheres pressure. The water in this chamber serves for operating the pockets, that is, for making the piston move back and forward, while the high pressure water flows to the pockets through a regulating valve. The flow of water through the regulating valve is controlled in such a manner that the speed of revolution of the grinder shaft in the case a water turbine drive is used, or the speed of the motor in the case electric drive is used, is maintained constant. The author also describes other methods of automatic control. Dr. W. Brecht and E. Schaun. Wochenblatt fuer Papier-Fabrikation, 1930, number 25A, pages 99 to 108.

Relation of the Most Important Properties of Mechanical Wood

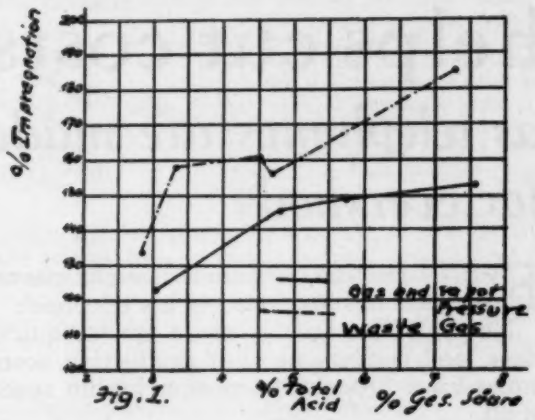
THE following conditions are taken into consideration in this study; the nature of the wood (fresh wood, dry wood); the quality of the wood (first grade, second grade); the nature of the grindstone; the consumption of power in kilowatt-hours; the consumption of power in kilowatt-hours per kilogram of mechanical wood; the mechanical wood in kilograms per 24 hours; the tearing length in meters; the Schopper-Riegler degree; the temperature of the water in the trough; the rate of forward movement of the wood; the pressure within the pockets; the sharpness of the stone. Curves are given to show the various relations. The accompanying illustration shows the relation between all the characteristics. Standards are arrived at for the classification of various grades of mechanical wood. F. Strauch, Wochenblatt fuer Papier-Fabrikation, 1930, number 25, pages 108-115.



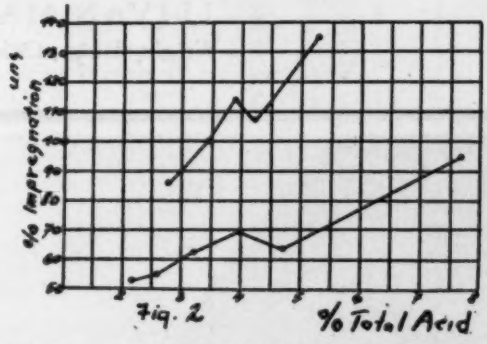
Impregnation of Wood in Digestion of Pulp

THIS is an interesting and rather detailed discussion of the phenomena that takes place during the impregnation of wood by the digestion liquor in the manufacture of sulphite cellulose. The point is brought out that the thorough impregnation of the wood with the sulphite liquor is of the utmost importance in the digestion of wood. The literature on the subject is reviewed.

The accompanying illustrations are interesting. Fig. 1 shows the influence of an increase in the quantity of free acid, while the combined acid remains constant on the penetration of the liquor through the wood. This is indicated to be 1.14 per cent. Fig. 2 also shows the influence of free acid content on the penetration of the wood by the liquor. The curves refer to fresh pinewood with a liquor containing 1.15 per cent of combined acid to air-dried pinewood with a liquor which contains 1.35 per cent of combined acid.



The influence of sodium sulphite on the wood is very slow. Comparative tests carried out with the aid of sulphite, bisulphite and bisulphite with the addition of excess sulphurous acid (the sulphites and bisulphites used being those of sodium, magnesium and calcium) at a temperature of 40 to 60 degrees C. showed, that the presence of excess sulphurous acid over that existing in the form of bisulphite is essential for good impregnation of the wood with the sulphite liquor. While magnesium sulphite, calcium bisulphite and magnesium bisulphite liquors, furthermore calcium bisulphite and magnesium bisulphite liquors with the addition of excess sulphurous acid are absorbed by the wood in their original composition, selective absorption takes place in the case of those liquors which contain sodium as a base. Dr. A. St. Klein, Der Papier-Fabrikant, 1930, number 25A, pages 105 to 111.



Asbestos Drying Felts

A STUDY has been made of the behavior of asbestos drying felts as compared with the ordinary cotton felt. The illustration shows the manner of the construction of the texture of the three-ply and four-ply asbestos felts. In the two-ply felt, the symbol (a) represents the asbestos warp in the top ply only, (a^1) the asbestos warp in the middle ply and (b) the asbestos filling. In the four-ply felt, (c) is the cotton warp in the lower ply, (c^1) the cotton warp in the middle ply, (d) the cotton filling in the lower ply and (d^1) the cotton filling in the middle ply. It is seen that in both cases the felt has a top weave of asbestos and a bottom weave of cotton. Many tests have been carried out on these

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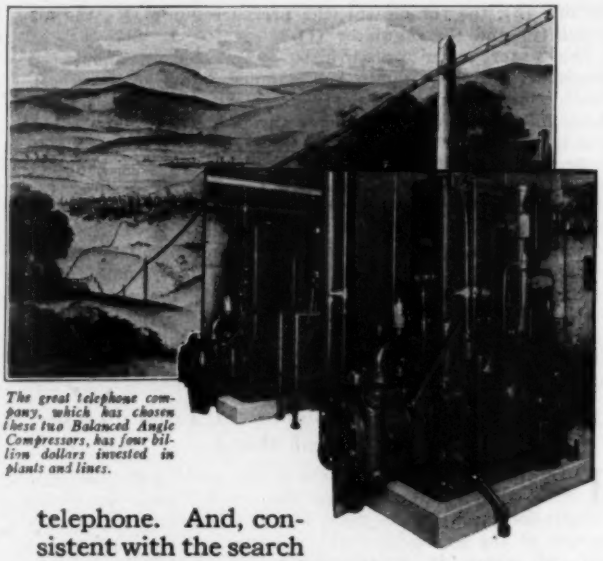

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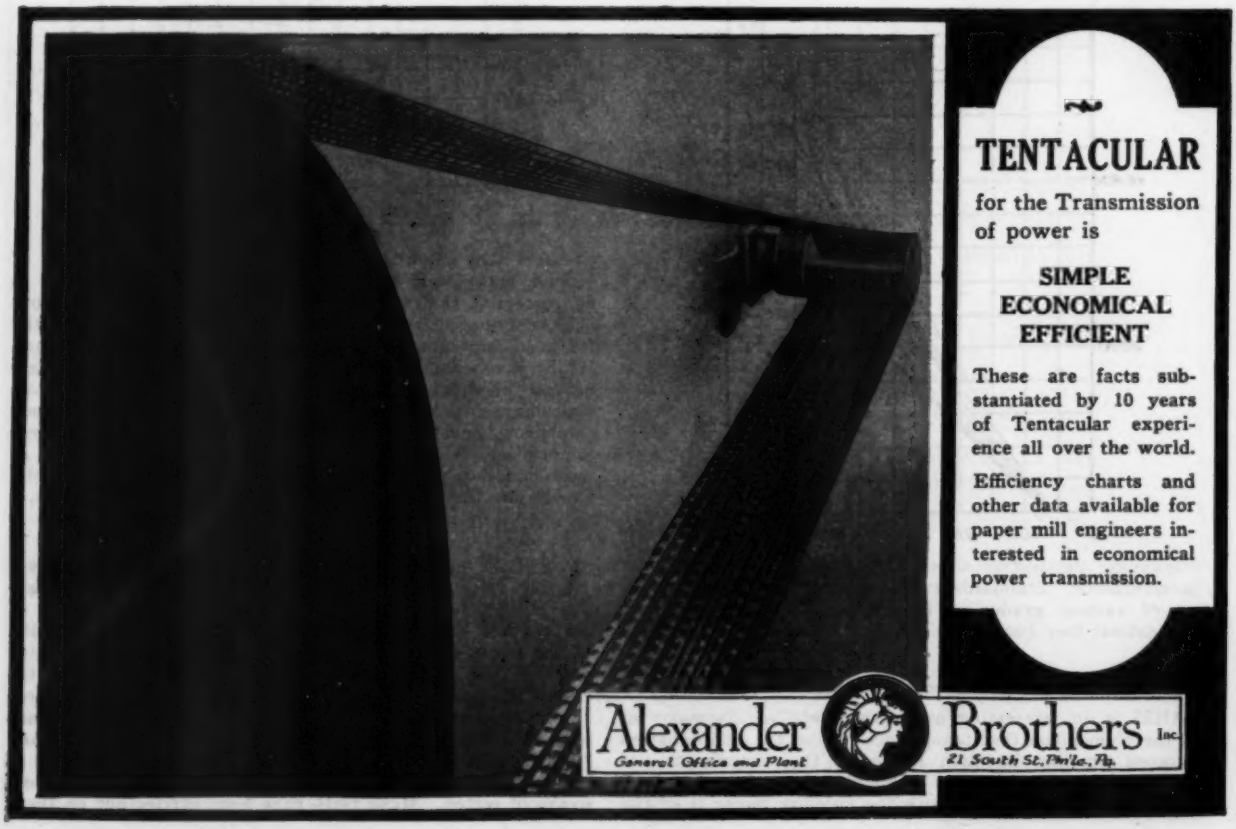
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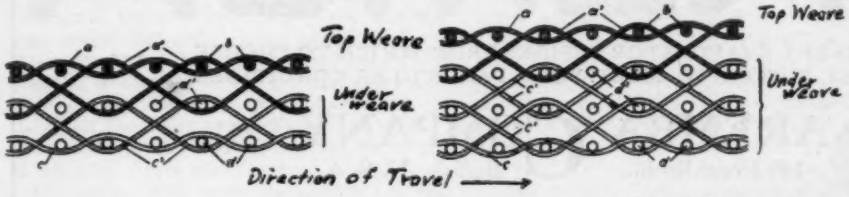
felts. It was found that while the loss of fiber values in the case of the wool felt amounted to approximately 40 per cent, the loss in the case of the asbestos felt amounted to only approximately 2.5 to 7 per cent. Various properties of the felts, such as strength were also tested. It was shown



that the factors that cause reduction of the strength of the felt as it is being used are counteracted to such an extent that the strength of the asbestos felt does not suffer reduction due to the decomposition of the felt. The porosity of the felt was also tested. It was proven that the air content in the asbestos felt amounted to normally between 62 to 68 per cent approximately. As the felt is used, the increase in these figures was almost negligible. The data obtained from the various experiments are given in the original article in tabulated form. Dr. E. Wagner. Wochenblatt fuer Papier-Fabrikation, 1930, pages 934-938; 959-965.

Formation of Gypsum in the Tower Liquor in Sulphite Mills

THE formation of gypsum in a tower liquor, which had been prepared from pure sulphur dioxide gas, does not rest upon the setting-in of a state of equilibrium, which is maintained in the liquor, between the sulphite ions and sulphate ions. For it is possible to prepare bisulphite liquors which are absolutely free from sulphate ions. The conversion of sulphite ions into sulphate ions in the tower must be assigned not to the co-action of the catalyzers, inasmuch as the oxidation experiments in the presence of all possible present substances, that can enter into the reactions, showed no greater speed of reaction than when these substances were absent. The conversion of sulphite ions into sulphate ions is much more a pure oxidation, which is dependent on the distribution and in contradistinction to the determinations, which were made during the oxidation of sodium sulphite solutions, entirely on the partial pressure of the oxygen present. The fact that the principal quantity is formed in the uppermost part of the tower is a further indication of the occurrence of the aforegoing phenomenon.

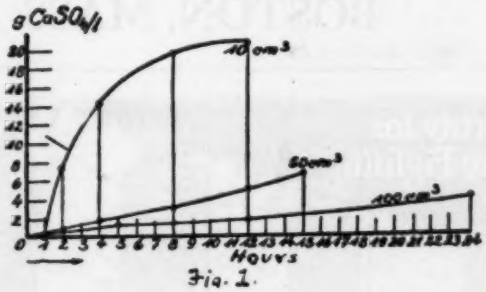


Fig. 1.

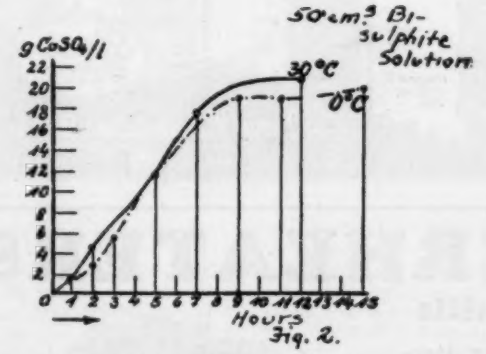


Fig. 2.

The following method was used for the investigation of freshly prepared tower liquor to determine the sulphate ion content. A glass flask filled with carbon dioxide was completely filled with the tower liquor by causing it to dip below the surface of liquor in the saucer at the bottom of the tower. The flask was then closed. 100 cc. of concentrated hydrochloric acid were then heated to boiling in a current of carbon dioxide, and 50 cc. of the tower liquor, removed from the flask by means of a pipette filled with carbon dioxide, were allowed to mix with the hydrochloric acid. The sulphur dioxide was then boiled over in the current of carbon dioxide and the remainder was evaporated down to one-third of the original volume. The mass was then filtered after it had been taken up with hot water, and the sulphate ion was determined in the mass in the usual manner by precipitation with the aid of barium chloride.

The accompanying curves show the relation between surface area and the quantity of liquor in the case of Fig. 1; in the case of Fig. 2, the formation of sulphate ion as air is being passed through. The influence of the oxygen in the air is not one of mere surface action. The curves show the increase in the formation of calcium sulphate with time for zero degrees C. and 30 degrees C. Finally, Fig. 3 shows the formation of calcium sulphate with the introduction of oxygen gas. The curves are again drawn for the temperatures zero degrees C. and 30 degrees C. It is evident that the use of oxygen has a marked accelerating effect upon the formation of calcium sulphate as compared with the action of air. H. Lauber, Der Papier-Fabrikant, 1930, number 25A, pages 50 to 53.

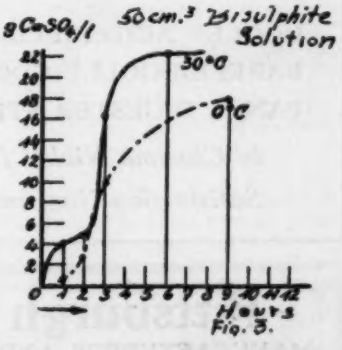


Fig. 3.

Newer Problems on the Obtaining of Paper Stock and Their Solution

THE author discusses in considerable detail various stages of the mechanical and chemical preparation of pulp. He has carried out a number of interesting investigations on the problem and the deduction that can be made from them is that wood and other vegetable products can be converted with high yield and with the aid of very gently-acting reagents into "defibritable" products. Also that when this material is beaten in a beater or ball mill the "half-stuff" that is obtained possesses marked properties. It is for this reason that such half-stuff is very well suited for the production of bleached pulps with a considerably higher yield than has been obtained in the usual digestion process.

The process, which is carried out in three stages, consists in gentle softening of the wood, mechanical disintegration of the wood into fibers and final chlorination. This process appears to be a way in which certain solution may be afforded some of the most important problems in the manufacture of pulp.

This staged process combined with a new debarking process carried out on the wood chips affords a means of working up technical and wood waste from the forests into valuable pulp. Due to the fact that the present-day knowledge of the structure of lignin is faulty, the commercial utilization of this constituent of wood in the manufacture of pulp lies still in the future. On the other hand, the most important technical prob-

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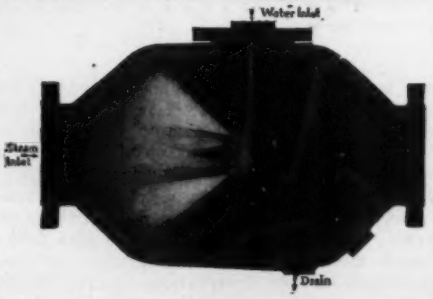

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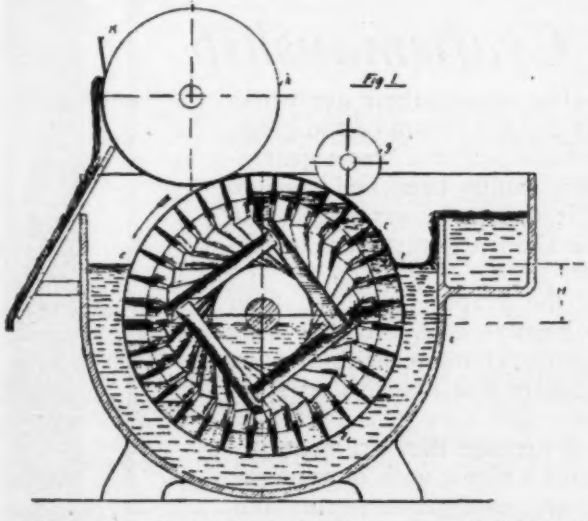
lem of the pulp industry to-day is the utilization of the carbohydrates that accompany the cellulose. It appears that the best manner in which to utilize these carbohydrates is to isolate these carbohydrates with the technical pulp to the advantage of the yield and quality of the same.

The original article contains in addition to a detailed discussion of the problems themselves and the various angles from which their solution can be attacked, a report of a series of experiments which were carried out in a ball mill. Various kinds of wood were tested, for example beechwood, pinewood, bamboo, etc. The action of sulphite liquor of various composition on the wood was also investigated. The results are given in tabulated form and a number of micro-photographs of the wood fibers are shown.

The tests which were made with retention of the wood gum or pentosans showed an increase in the yield of pulp. Much better yields are obtained by the three stage process both in the case of beechwood and pinewood than in the older processes which have been used up to the present time. Newer researches have shown that the yield from beechwood has reached 55 per cent of bleached pulp. The development of strength in the different pulps of the three stage process in beating and of the use of various processes on beechwood will be investigated further. Dr. R. Runkel, Technologie und Chemie der Papier und Zellstoff Fabrikation, 1930, pages 81 to 88 and 97 to 110.

New Stuff Catcher

THE illustration shows a new drum filter which has been designed for the purpose of overcoming the inherent defects in the ordinary drum stuff catcher. The various types of suction filters are, of course, improvements on the drum filter, but the former apparatus requires the use of a suction pump or a long fall pipe. The new filter is on the other



hand entirely self-contained. An ingenuous method is used for securing suction. The drum is divided internally into shallow cells each of which is connected to a tube which is bent in such a manner that it acts as a fall pipe when by reason of the revolution of the drum it is brought above the level of the stuff and water. The speed of the drum must not exceed that at which the tubes will completely fill before reaching the surface of the water at the exit side. The World's Paper Trade Review, 1930, page 1238.

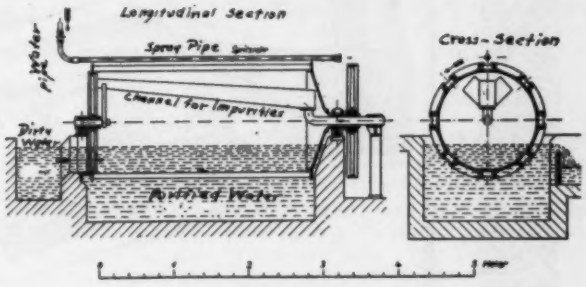
Glucose in Making Parchmentized Paper

THE use of glucose for this purpose improves the quality of the paper. The additional cost involved is not a factor. The addition of glucose to the beater effects rapid hydration of the pulp and improves the effectiveness of the dehydration of the web on the wire of the paper machine. The production of the machine is increased materially because of this phenomenon. Details are given in the original article on the proportions of glucose to use and the method employed. It is claimed that the addition of three kilograms of glucose per 100 kilograms of pulp is sufficient in the production of a parchmentized paper weighing 40 grams per square meter. The glucose may be used either dissolved in warm water or else it may be added in pieces direct to the beater. Inasmuch as the contents of the beater are heated, complete solution of the glucose is assured.

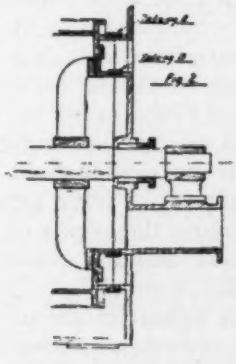
The use of glucose in solution form for treating the paper before calendering is also discussed. The result of this practice is that a softer and more flexible paper is obtained. The glucose is commonly used in the form of a 10 or 12 per cent concentrated solution. When the concentration of the glucose solution is increased to 20 to 25 per cent, an extremely pliable paper is obtained. Dr. Hans Wrede, Der Papier-Fabrikant, 1930, number 25A, pages 118-9.

Purification of Water by Means of a Drum Filter

THE importance of and the necessity for economy at the same time in the purification of water used in the manufacture of pulp and paper are discussed. The drum filter ap-



pears to be very well suited for this purpose. The solid impurities in the water are removed by passage through a fine screen, having 1,000 to 5,000 mesh per square centimeter. The action of this filter is so powerful in its cleansing effect that it is often unnecessary to subject the water to any further treatment before it is used in the process.



The apparatus is shown in the accompanying illustration. It consists of a drum frame around which is wrapped a metal wire stretched tightly. The wire is fastened in such a manner that it is a simple matter to remove and replace it. The water enters laterally into the interior of the drum and passes through the meshes of the wire to the outside, while the impurities are held within the drum on the surface of the screen. These impurities are held against the screen by suitable means as the drum rotates and when the topmost point in the rotation is reached, the impurities are removed from the screen by means of a current of water and carried out of the apparatus through a channel.

This apparatus requires one horsepower to operate it and it can be run directly by an electric motor or by means of belt drive. A drum which has a diameter of one and one-half meters and a length of three meters has an output of 10 to 15 cubic meters of water per minute, which is sufficient for a paper mill with a daily output of approximately 25,000 kilograms of paper. Zellstoff und Papier 1930, pages 88 to 89.

William J. Wilson, Jr., for several years treasurer and sales manager of the Ticonderoga Pulp and Paper Company, of New York, has resigned this connection to become associated with the Bradley McKeefe Corporation, of 522 Fifth Ave., New York, a chemical engineering organization specializing in pulp and paper mill work.

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REPORTS concerning the paper market are encouraging. In most instances it it stated that business is increasing, but the improvement is slow. In fact, demand is not expanding in anything like the manner that paper manufacturers and merchants had anticipated and hoped for at about this time; consumers are buying in a steady way, but they are confining their purchases strictly to required quantities, and aggregate business does not begin to measure up to that ordinarily seen at this period of the year.

Nevertheless it is evident that the industry is characterized by more favorable conditions, and that the market is gradually working into a steadier and healthier position. Stocks of paper of almost every class at consuming and converting centers are being diminished to a point where it appears only a question of time when jobbers and consumers will be obliged to broaden their buying activities to augment supplies. Paper manufacturers in turn are keeping their production down to where it can safely be said the output at present is certainly not in excess of the current demand, and that, if anything, it is well within the scope of the market as it is now constituted. In other words, stocks of finished paper and board at mills are being reduced also, and the probabilities are paper manufacturers, almost as a unit, will finish this year with smaller inventories than they have been accustomed to carrying in recent years. This indeed is a healthy sign, and one which should add materially to the advantage of the industry once general business conditions are more on the mend and demand for the product of paper mills assumes broader dimensions.

The market is by no means dormant. The situation is much improved over what it was during the summer, and paper mills are now producing more and selling more paper than a few weeks ago. As a matter of fact, demand from distributing and consuming quarters is quite consistent in its development, and is gradually expanding. However, there is noticeable caution on the part of buyers in absorbing supplies. Everyone seems bent on limiting purchases to bare requirements; this is not a condition characteristic of the paper market only, instead it is the situation existing in practically all commodities at present. Buyers are refusing to take advantage of the attractively low prices prevailing; apparently they are more concerned with keeping their capital liquid than they are with taking advantage of ruling prices and laying in stocks of materials, presumably being content to let the future take care of itself. There is a movement afoot in various parts of the country to encourage buying, as the best and quickest means of improving general business and ending the industrial depression, and it would appear as if this campaign is at least starting to bear fruit. Obviously, the moment buying sentiment is changed and the general public resumes purchasing merchandise in a more normal fashion, the paper market will benefit to its full extent along with other manufactured articles.

Production of paper in the United States in August was about on a parity with the preceding month's output. This would indicate that manufacturers are wisely holding down their production in keeping with current demand, since ordinarily there is a considerable spurt in paper manufacturing during August after the summer lull. Mills of the country reporting to the American Paper and Pulp Association produced a total of 469,696 net tons of paper and board of all kinds in August, compared with 468,582 tons in July. Shipments from mills during August aggregated 466,278 tons, against 476,197 tons in the preceding month, leaving on hand at mills at the end of August stocks of 289,804 tons, contrasted with 286,905 tons a month before. The daily average of production during August was about the same as in July but was 15 per cent under the output in the corresponding month a year ago. Production of all the major grades in the first eight months of this year registered decreases as compared with the similar period last year.

Newsprint production in the United States and Canada in September, totaling 290,751 tons for both countries, showed a decrease as compared with 303,644 tons produced in the preceding month, and shipments from mills amounting to 289,883 tons in September were under the 297,106 tons shipped in August, according to the monthly summary of the News Print Service Bureau. Production in the United States was 95,261 tons in September, against 101,601 tons in August, and shipments from mills were 96,048 tons, against 99,236 tons, while Canadian mills produced 195,490 tons and shipped 193,835 tons in September, contrasted with 202,043 tons produced and 197,870 tons shipped in August. During September, 23,767 tons of newsprint were made in Newfoundland and 1,000 tons in Mexico, so that the total North American production for the month amounted to 315,518 tons, compared with 329,169 tons in August.

The Canadian mills produced 96,321 tons less newsprint in the first nine months of 1930 than in the same time last year, which was a decrease of five per cent. The United States output was 53,663 tons or five per cent less than in the first nine months of 1929. Production in Newfoundland was 25,623 tons or 14 per cent more, and the Mexican production was 3,357 tons less, making a total decrease of 127,718 tons or four per cent. During September, the Canadian mills operated at 66.8 per cent of rated capacity, United States mills at 70.2 per cent, and Newfoundland mills at 103.2 per cent. Stocks of newsprint at Canadian mills totaled 62,495 tons at the end of September, and at United States mills 30,879 tons, making a combined total of 93,374 tons, which was equivalent to 5.5 days' average production.

August production of paperboard in the United States amounted to 222,372 tons, compared with 221,696 tons manufactured in the preceding month, and bringing the total for the first eight months of the current year up to 1,838,283 tons, against 2,019,779 tons in the same period of 1929, and 1,811,050 tons in the first eight months of 1928, according to the summary of the board industry compiled by the United States Department of Commerce. Mills shipped out a total of 223,943 tons of board in August, contrasted with 222,341 tons in July, and had stocks on hand amounting to 71,233 tons at the end of August, against 71,601 tons a month earlier. New orders received during August called for a total of 223,006 tons of board, compared with 229,792 tons in the preceding month, and unfilled orders held by mills at the end of August were for 64,457 tons, against 65,819 tons a month previously.

The threatened price war in newsprint apparently has been averted, and present signs are there will be no revision in the contract basis over the turn of the year and for at least the early part of 1931. More print paper is now being used as publishers enlarge their editions to accommodate the increased advertising being received. Wrapping paper is moving moderately well and prices have firmed again following the reduction recently. Fine papers are favored with a fair demand and quotations are maintained. Tissue is developing more market activity, and specialties such as glassines, parchments, covers and fancy box papers are in fair call. Boxboard is moving steadily from mills though in smaller than usual tonnage. Rumors in the trade are that mill prices of board are about to be advanced back to the levels obtaining prior to the cut of $5 a ton in September.

ALKALI

58 per cent is more than mere figures when applied to Diamond Soda Ash —it describes a quality that is undeviating—a Soda Ash guaranteed to test over 58 per cent Sodium Oxide by actual analysis.

In order to safeguard the quality of their raw materials, consumers of Caustic Soda are urged to specify "Diamond" 76 per cent *Actual Test* Caustic Soda, a full strength alkali that will analyze over 76.50 per cent Sodium Oxide.

Diamond Alkali Company

Pittsburgh, Pa., *and Everywhere*

Papermaking Rags

There is no doubt that demand for papermaking rags is not developing in a volume ordinarily witnessed at this period of the year. Paper manufacturers are buying in a very cautious manner; evidently they are not the least worried regarding the future, and are absorbing supplies of rags, along with other raw materials, only as their current needs necessitate. Sellers of rags assert that, try as hard as they may, and notwithstanding the seemingly attractive level of rag prices at present, they cannot induce consuming customers to place orders unless the need of supplies is urgent. Consequently, the business transpiring is very spotty in character, and is of such limited aggregate volume that not only is it not having influence of a stiffening nature on ruling market values but prices are scarcely being supported on prevailing levels.

Buyers apparently feel that the rag situation is altogether in their favor, and that there is no incentive nor reason for them stocking up raw material, even though prices may be on an attractive basis. In fact, it appears as if buyers have had matters in the market so much their own way for so long a while they cannot believe that conditions may change to their detriment, and therefore they are permitting the future to take care of itself and are purchasing rag stock only when requirements definitely develop.

Of course, from the seller's standpoint, the market always looks worse when demand is slow, particularly when a lengthy dull period has been experienced. As a matter of fact, there are some bullish aspects to the papermaking rag situation, although they may be largely under the surface of the market at this time. There is no question but that collections of rags all over the country have been curtailed drastically; there is no doubt that dealers are carrying much smaller stocks than usually; it is an accepted fact that production of new cotton cuttings has been appreciably reduced for some months past, so that fewer such rags have come into the market, and present stocks are decidedly subnormal, while Government figures show that imports of papermaking rags into the United States have fallen off and are now more on a decline than in some months.

Thus, the supply situation is undoubtedly strong, but this is lost sight of in a market that is favored with so limited demand as happens to exist for papermaking rags at present. Dealers are predicting that when the general industrial situation improves and paper mills find it necessary to broaden their activities and increase their buying of raw material, it is likely a spurt in rag prices will be seen. It is declared that available supplies of rags would not begin to fill the wants of consuming mills under more normal manufacturing conditions, and it is said that it will require some time to repair the collection and production machinery throughout the country to bring the supply up to a level ample to cover mills' requirements when paper manufacturers resume operations on a nearer normal scale.

Certain grades of rags are characterized by a fair demand, whereas others are under neglect of buyers decidedly. In new cuttings, a moderate movement of No. 1 white shirt cuttings, khaki cuttings, corset cuttings, and corduroy cuttings is reported, with prices of these grades holding steady. Other cuttings are being acquired by mills at price concessions in frequent instances. Old white and blue cottons are in routine call chiefly, and prices exhibit an easing trend. Repacked thirds and blues are available at two cents a pound f.o.b. shipping points, and perhaps at slightly less, while No. 1 repacked whites are quoted from five cents upwards a pound, depending on the packing quality. Roofing rags are in little demand, and on a price basis of 70 to 75 cents per hundred pounds f.o.b. shipping points in the East for No. 2 domestic roofing or mixed satinets. Foreign rags of all grades are scarcely wanted, reports say, and so little business is current that it is difficult to determine what market price levels actually are. Sales of imported stock have been recorded in some quarters at "sacrifice" prices.

Average quotations f.o.b. shipping points and ex dock New York are as follows:

New Stock—	New York and Chicago
White shirt cuttings, No. 1	8.00– 8.50
White shirt cuttings, No. 2	6.00– 6.50
Fancy shirt cuttings	5.00– 5.25
Washables, No. 1	5.25– 5.50
Unbleached muslins	8.25– 8.50
White lawns	7.25– 7.50
Overall cuttings, blue	6.25– 6.50
Black silesias	4.25– 4.50
Canton flannels, bleached	7.75– 8.00
Canton flannels, unbleached	6.50– 6.75
Shoe cuttings, bleached	6.25– 6.50
Shoe cuttings, unbleached	4.75– 5.00
Light silesias	6.25– 6.50
O. D. Khaki cuttings	5.75– 6.00
Mixed khaki cuttings	4.75– 5.00
Corduroy cuttings	3.25– 3.50
Cottonade cuttings	2.75– 3.00
Linens, No. 1 white, foreign	13.00–14.00
Light prints, foreign	3.50– 3.75
Old Stock—	
Whites, No. 1, repacked	5.00– 6.00
Whites, No. 2, repacked	2.25– 2.75
Whites, house soiled	2.00– 2.25
Whites, street soiled	1.75– 2.00
Thirds and blues, rough	1.25– 1.50
Thirds and blues, repacked	1.75– 2.00
Lace curtains	4.50– 4.75
Black stockings	4.10– 4.25
Cotton canvas, No. 1	4.00– 4.25
White cotton batting	1.50– 1.75
Roofing, No. 1 (cloth strippings)	1.00– 1.10
Roofing, No. 2	.70– .80
Linsey garments, foreign	1.05– 1.10
Dark colored cottons, foreign	.85– .95
Blue linens, foreign	3.00– 3.50
Gray linens, foreign	3.00– 4.00
White linens, foreign	6.50– 7.00
Light prints, extra foreign	1.75– 2.00

Rope and Bagging

Market prices of old rope seem to be maintaining their position even though paper mills are engaging in little important buying. Those mills which use old rope in consistent fashion are absorbing supplies through regular channels, but are doing little purchasing in the open market, and there is admittedly limited buying competition. However, it is asserted supplies of old rope are small, and that this is helping to sustain market values. Domestic No. 1 old manila rope is bringing 3.25 cents to slightly higher per pound at dealers' shipping points, and foreign old rope is quoted at 3 to 3.25 cents ex dock New York and other American Atlantic ports.

Bagging is in moderate demand, and essentially unchanged in price, though any quotational revisions recorded have been in a downward direction. No. 1 scrap bagging is on a price level of around 1.45 cents a pound at shipping points, No. 1 gunny bagging 1.50 cents, and roofing bagging 60 cents per hundred pounds.

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High quality Casein made under strict laboratory control. Excellent solubility. Satisfactory viscosity. Write for sample and quotations.

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A TRIAL FELT FOR YOUR MACHINES WILL PROVE THESE FACTS.

THE WATERBURY FELT CO., SKANEATELES FALLS, N.Y.

Commercial Sulphate of Alumina

Liquid Chlorine

Single Unit Tank Cars 150-Lb. Cylinders
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Standard Bleaching Powder
Natrona Porous Alum

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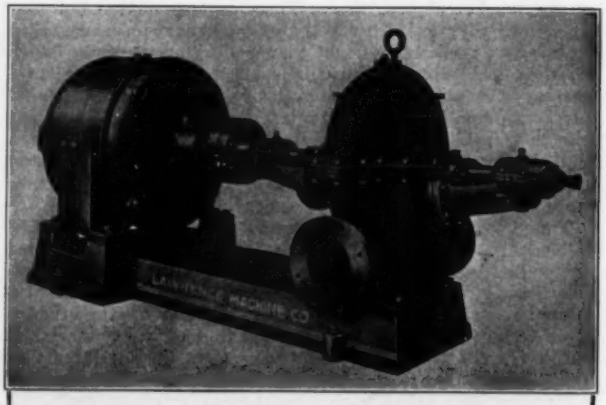

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LAWRENCE, MASS.
Manufacturer of "Lawrence" Pump, Centrifugal Pumping Machinery, Vertical Steam Engines, Contractors for Special Machinery

PAPER MAKERS CHEMICAL CORP.

SUPERIOR ROSIN SIZE
SATIN WHITE
and other
INDUSTRIAL CHEMICALS

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ALBANY, N. Y.
LOCKPORT, N. Y.
CARTHAGE, N. Y.
PENSACOLA, FLA.
JACKSONVILLE, FLA.
SAVANNAH, GA.
FARGO, GA.
ATLANTA, GA.
MARRERO, LA.
BURLINGTON, ONTARIO
ERITH, ENGLAND

F.o.b. shipping point and ex dock New York quotations follow:

	New York and Chicago
Gunny, No. 1 domestic	1.50– 1.60
Gunny, No. 1 foreign	1.45– 1.55
Scrap bagging, No. 1	1.40– 1.50
Roofing bagging	.55– .65
Wool tares, heavy	1.65– 1.75
Wool tares, light	1.55– 1.65
Manila rope, No. 1 foreign	3.00– 3.25
Manila rope, No. 1 domestic	3.25– 3.50
Sisal strings	1.75– 2.00
Mixed Strings	.75– .90

Old Paper

The better grades of old paper are relatively firm in price and are reported scarce, while the low qualities are at least holding their own on price levels which are the subject of considerable complaint on the part of dealers and packers, who declare they are losing money on every ton handled and sold at prevailing market rates. Mills are buying as their requirements dictate, and it is evident they are not in need of usual tonnages, with the result that demand is falling well shy of normal.

Such materials as white shavings—hard and soft—are moving fairly well and No. 1 hard white shavings are selling on a price range of 2.60 to 3 cents a pound at shipping points, depending on the packing, while soft white shavings are 2.35 to 2.75 cents, the higher figure being granted for one-cut quality. No. 1 old kraft paper is in comparatively good call and is bringing around 1.35 cents per pound at dealers' points, while white blank news cuttings are firm at 1.75 cents and a shade higher. Book stock is quiet, and is reported available at 80 cents a hundred pounds for No. 1 heavy books and magazines. Folded news is selling in the East at 35 cents a hundred and No. 1 mixed paper at 25 cents f.o.b. shipping points, with above these prices named in the Middle West.

The following are quotations named by dealers f.o.b. shipping points:

	New York and Chicago
Hard white shavings, No. 1	2.60– 3.00
Hard white shavings, No. 2	2.35– 2.60
Soft white shavings	2.35– 2.75
Colored shavings	.65– .75
Heavy book, No. 1	.80– .90
Crumpled book, No. 1	.65– .75
Ledger stock	.70– 1.20
Kraft No. 1	1.30– 1.40
New kraft cuttings	1.60– 1.75
White blank news	1.70– 1.80
Manilas, No. 1	.45– .60
Manilas, container	.30– .35
Folded news	.35– .50
Sulphite mill wrappings	.50– .60
Old corrugated boxes	.40– .45
New corrugated box cuttings	.50– .55
Mixed paper, No. 1	.25– .35
Common paper	(Nominal)

Pulpwood

Consumers are now arranging contracts for pulpwood to be cut during the approaching winter, and reports state that buying is of about normal volume. The current market is quiet, with the principal movement against contracts. Prices as quoted are reported unaltered though rather on the easy side.

During the first nine months of 1930 exports of pulpwood from Canada totaled 1,107,159 cords, valued at $11,221,892, showing an increase over the 1,081,701 cords of a value of $11,009,255 exported in the corresponding time last year, according to Canadian Government official statistics.

Mechanical Pulp

The market for mechanical wood pulp is quiet, to describe the situation reservedly. Consumers are doing very little buying while evidently finding their contract commitments sufficient to fill current wants, and the sales outlet is said

TO THE PAPER MILL SUPERINTENDENT

It is sound economy to generalize in G D C Colors.

Consult our representative—he can offer suggestions.

There is a G D C color for every specialized need.

Current colors are carried in stock at all our offices.

GDC

GENERAL DYESTUFF CORPORATION

230 Fifth Ave., New York, N. Y.

Starch—

A SIMPLE change in the manufacturing process often results in a pronounced decrease in cost of production.

Paper Mills use Starch for sizing to produce better and stronger sheets with lower cost of manufacture.

Our SPECIAL PAPER brand, furnished in either Pearl or Powdered form for beater-sizing, increases strength of sheet and gives improved finish.

Our FOX HEAD brand for top-sizing is more economical than all glue-size.

CORN PRODUCTS REFINING COMPANY
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The

NEW ROLLED PROCESS

Improves the wires, both for fourdrinier and for cylinder use.

Gives longer life.

Improves the finish of the sheet.

Less trouble on the machine.

The only wire with a perfect surface.

WISCONSIN WIRE WORKS

APPLETON — WISCONSIN

100 Tons Kraft Per Day—
58% A.D.

With the Famous

Kamyr Wet Machine

PRODUCTION . . . .

Kraft	up to	100 Tons
Sulphite	up to	80 Tons
Soda	up to	60 Tons
Groundwood	up to	50 Tons

RESULTS . . . . . .

With 1 Press	42% A.D.
With 2 Presses	55% A.D.
With 2 Presses & Predryer	58% A.D.

SAVES . . . . . .

Felt, Wire, Labor
Upkeep, Power, Fibre
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PAPER MACHINERY, LTD.

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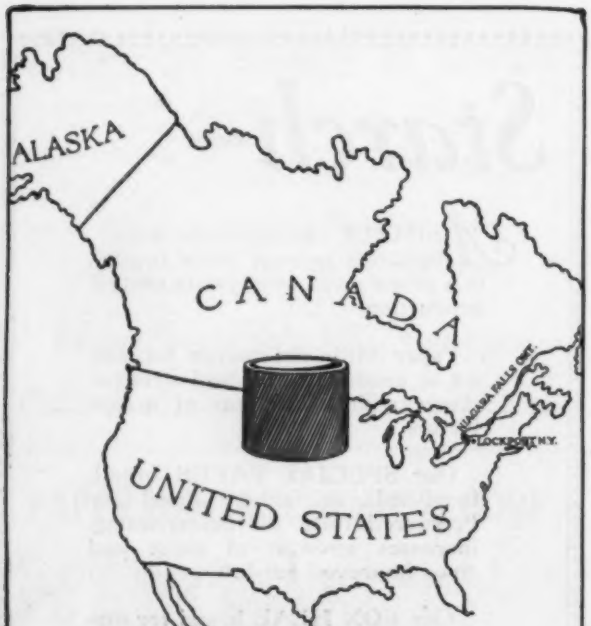

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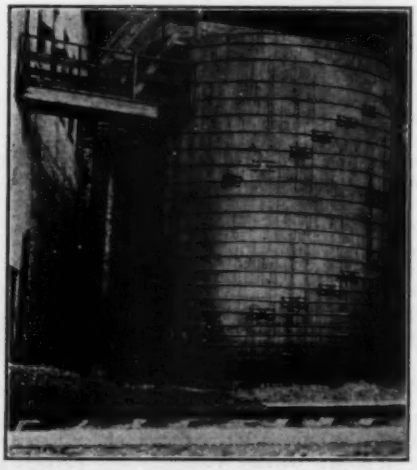


Acid tank at Nekoosa-Edwards Paper Company, Pt. Edwards, Wis.

Kalamazoo tanks are made of best obtainable tank woods, built right—guaranteed tight.
Sixty years experience building Blow Pits, Acid Tanks, Stuff Chests, Agitators, etc., for the Paper Trade.
See our condensed catalog in Paper & Pulp Mill Catalog, Chemical Engineering or Sweets.
Ask about our new Tile Tanks for stock or bleach.

KALAMAZOO TANK & SILO CO., Kalamazoo, Mich.

to be so narrow that some pulp mills have reduced their production, temporarily at any rate. A late report states that one of the largest groundwood mills in Canada has shut down, having found it next to impossible to market its pulp. On the other hand, it is said there is a fair movement of supplies against contracts, which is absorbing most of the groundwood now being produced by both domestic and Canadian grinders, and latest issued statistics show that mill stocks are diminishing fairly rapidly.

Domestic groundwood is around $28 a ton in price, f.o.b. grinding plants, while Canadian groundwood is reported selling at $25 upwards a ton at shipping points, depending on the freight to consuming centers and the air dry test. During August, mills in the United States produced a total of 63,632 net tons of mechanical pulp, against 69,201 tons manufactured by identical mills in the preceding month. Stocks on hand at the end of August were 80,641 tons, compared with 94,245 tons a month before, according to the American Paper and Pulp Association.

Chemical Pulp

There is not much life to the chemical pulp market, yet buyers are reported showing somewhat better interest and to have broadened their operations in some cases. Certainly, a steadier price tone is in evidence, which seems based on slightly more trade activity and an improving technical condition in the market. Consumers are placing orders chiefly when in immediate need of supplies, and appear little disposed to buy ahead even though it is generally acknowledged prices are on attractive levels and are hardly likely to move lower.

Bleached sulphite of domestic manufacture is quoted on a broad price range of as low as 2.75 cents a pound ex dock Atlantic seaboard for Pacific coast sulphite up to 4.50 and 4.75 cents for the product of certain pulp mills. Unbleached sulphite is around 2.25 cents a pound f.o.b. pulp mills for news grade, and 2.40 cents upwards for book qualities. Bleached soda pulp is quoted at around 3.25 cents a pound delivered, and domestic kraft is on a range of 1.90 cents or less at pulp mills for southern kraft up to 2.75 cents and higher for No. 1 eastern kraft.

Production of chemical pulp in the United States in August amounted to 115,538 net tons, against 109,627 tons produced by identical mills in July, according to figures compiled by the American Paper and Pulp Association. Mill stocks at the end of August totaled 24,925 tons of all grades of chemical, contrasted with 25,291 tons a month previously.

Quotations f.o.b. pulp mills are as follows:

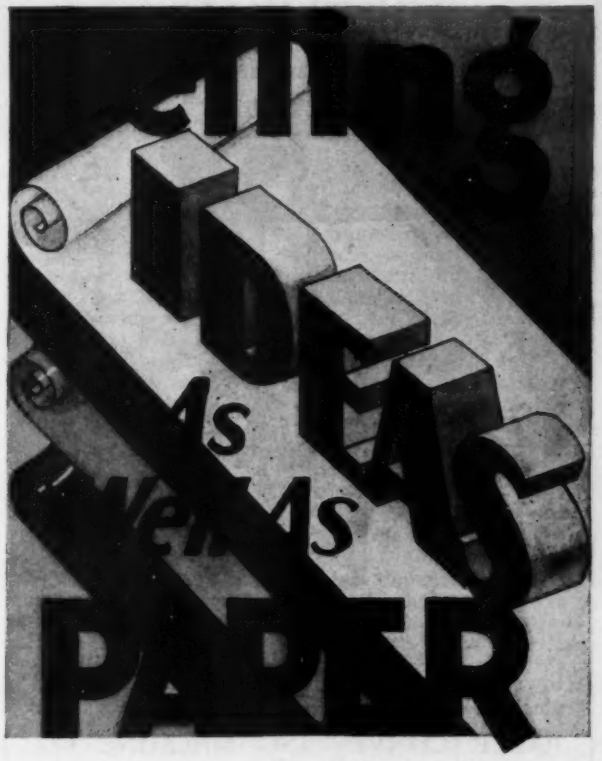
Bleached sulphite	2.75–4.75
Easy bleaching sulphite	2.50–2.75
Unbleached sulphite, No. 1 strong (news grade)	2.25–2.50
Unbleached sulphite, No. 1 book	2.40–2.65
Soda pulp bleached (delivered)	3.10–3.35
Mitscherlich, unbleached	3.00–3.25
Kraft, No. 1	1.90–2.75
Screenings, refined	(Nominal)

Chemicals

Casein prices have registered a decline, and domestic casein is reported available at 10.50 cents for standard ground up to 13.50 cents for finely ground, while the imported product is quoted at 13 to 13.50 cents per pound. Quotations on rosin are lower, with the grades of gum rosin used by paper mills available at 5.35 to 5.40 cents a pound, in barrels. Caustic soda and soda ash prices are maintained steadily. Bleaching powder holds to a quotable level of 2 to 2.35 cents per pound, in drums, at works.

Average quotations are as follows:

Alum, lump ammonia	3.50 – 3.75
Alum, lump starch	3.75 – 4.00
Blanc fixe, powdered	3.75 – 4.00
Bleaching powder	2.00 – 2.35
Brimstone (long ton, at mine)	18.00 –20.00
Casein (duty paid)	10.50 –13.50
Caustic soda, spot delivery	3.30 – 3.35
China clay, domestic washed	8.00 –13.00
China clay, foreign	15.00 –21.00
Rosin, Grade E	5.35 – 5.40



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Foods now travel to the ends of the earth in perfect safety Big business relaxes over the high grade bonds furnished for letterheads and business machines. Schools rejoice over the high grade ruled papers. Housewives are happier because of household specialties.

Ideas is the forword of the management of the "World's Model Paper Mill" Always in advance of the march of progress.

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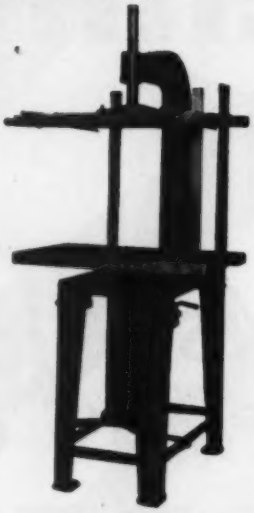
MULTI-WALL BAG BUNDLING PRESS

SPEED SERVICE



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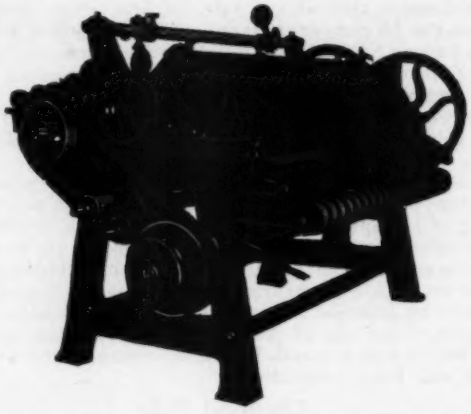

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Single—Duplex—Diagonal

CUTTER KNIVES
PATENT TOP SLITTERS

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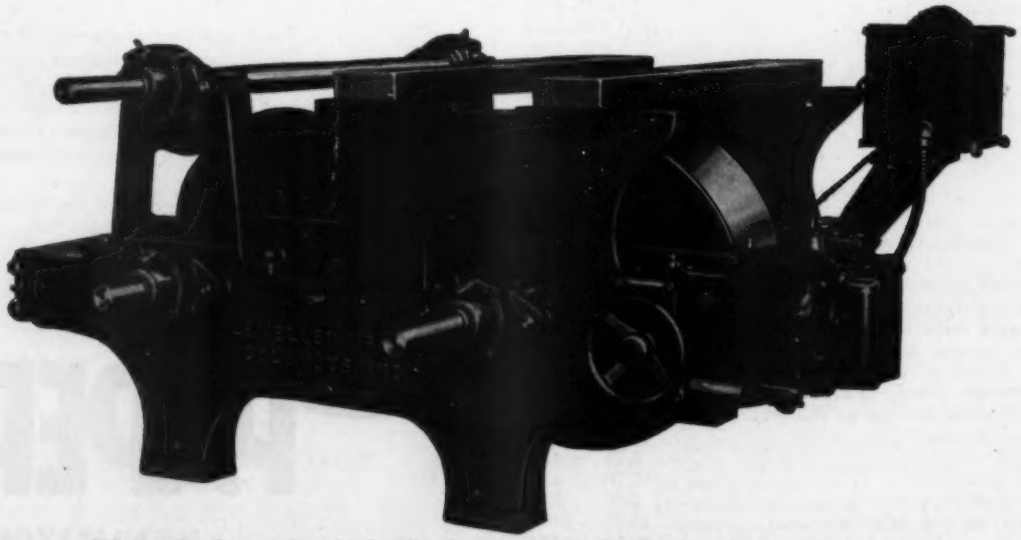
LEWELLEN VARIABLE SPEED TRANSMISSION

No matter how intricate your variable speed control problem may be, Lewellen engineers can meet your requirements with the proper combination of Lewellen standard units, and possibly some slight alterations to exactly fit your case.

Submit your problem to us, and let us show you how simple, and how reasonable in price the solution will be. It will cost you nothing to find out. Write today.



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New Papers

Writing—	
White rag	15–40
White sulphite	9–30
Colored rag	15–40
Colored sulphite	8–30
Ledger—	
White rag	16–40
White sulphite	10–30
Colored sulphite	8–30
Colored rag	15–40
Bond—	
White rag	16–40
White sulphite	8–30
Colored sulphite	8–30
Colored rag	15–40
Book—	
No. 1 S. & S. C.	5.75– 8.00
Machine finished	5.50– 8.00
English finish	5.50– 8.00
Coated and enameled	7.50–12.00
Lithograph, M. F.	7.50–12.00
Newsprint—	
Rolls, contract, per ton, delivered New York..	62.00–
Rolls, transient, per ton, delivered New York..	62.00–
Sheets, per ton, delivered New York	67.00–
Side runs, per ton, delivered New York	47.00–52.00
Cover Stock—	
Coated, both sides	–10.25
Coated, one side	–10.15
Tissue—	
No. 1 white, 20x30	.75– .90
No. 2 white, 24x36	.75– .90
No. 1 Manila, 24x36	.75– .80
Kraft	.95– 1.10
Wrapping—	
No. 1 kraft	5.75– 6.25
No. 2 kraft	3.50– 4.50
Southern kraft	3.50– 4.00

Boards—	New York and Chicago
Solid news	32.50–35.00
Straw	45.00–50.00
Plain chip	27.50–30.00
White coated chip	45.00–50.00
Manila coated chip	40.00–45.00
Binders' board	65.00–70.00

Chemicals

(Continued from page 1479)

Satin white	2.00 – 2.25
Soda ash, 58 per cent light (bags)	1.32½–.....
Starch, papermakers', in bags	3.62 –.....
Talc (ton)	16.00 –18.00

A Ross-Grewin High Pressure Vapor Removal System has been installed on the No. 1 News Machine at the Fulton, N. Y. mill of Oswego Falls Corporation.

Progress in the Kraft Situation

Evidence of the way in which the kraft industry is tackling its problems is seen in a recent meeting in New York of the Committee of the Industry, appointed as result of joint conference between the national and southern kraft associations.

Two very definite results were achieved at this meeting, the first being a unanimous recognition of the necessity of operating to orders, and the second, a move to obtain complete kraft statistics, covering both paper and board. It is expected that these data will be developed through the combined co-operative efforts of the National Kraft Association, the Southern Kraft Association, and the American Paper and Pulp Association.

Further meetings of this committee will be held at early dates under the chairmanship of D. Clark Everest. Meanwhile, the members of the committee are studying the various plans for effecting the economic stabilization of the industry as discussed at the committee's first meeting.

It would appear that the recent improvement in the kraft wrapping situation was as welcome to the merchants as to the manufacturers, as presaging further efforts towards complete stabilization of the industry in all of its related branches. More than seasonal demand is reported by many of the mills, all of whom are evidently willing to help the Committee of the Industry in every possible way in its difficult task of developing plans for some control of the condition of competition now seemingly existent in many of the branches of the kraft industry.

The work of this representative committee only serves to emphasize the value of unified and co-ordinated effort to overcome conditions, which, in themselves, present almost insurmountable difficulties to individual units regardless of the zeal of those units in pushing effort to improve conditions. The results of the committee's work will be watched with interest not only by kraft manufacturers and merchants, but also by other branches of the industry whose position has been somewhat affected by the kraft situation.

Importers Abandon Court Cases

One of the most astounding developments in the history of the United States Customs Court marked the calling for trial of the cases involving paper at the sitting of the court beginning October 14.

On that docket were 1,161 cases involving paper. When the call of the docket was completed it was found that importers had abandoned 846 cases involving the importation of writing paper and papeterie. No such wholesale abandonment of importers' protests has ever been known in the history of the Customs Court. In every case referred to, the importers were forced to pay an additional duty of 10 per cent because of the decorative effects on the paper. Some of these cases, due to the activity of the Import Committee of the American Paper Industry had been pending for three years.

Ship Paper by Air Freight

P. H. Glatfelter Co., paper manufacturers of Spring Grove, Pa., recently received a rush order from the Central Ohio Paper Co., Pittsburgh Division for delivery to the Graphic Arts Press, Pittsburgh.

This emergency was met by shipping the paper from the York, Pa., Airport via the Pittsburgh Airways, Inc. This is the first freight shipment handled by the air company from the York port, and Glatfelter Company believe it to be the first time the airplane has been called into service for the shipment of paper.

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Bergvik och Ala Nya Aktiebolag, Söderhamm, Sweden
Svanö Aktiebolag, Svanö, Sweden
Aktieselskabet Greaker Cellulosefabrik, Greaker Norway

KRAFT PULP

Nenajö Cellulosa A.—B., Sprängsviken, Sweden
Bergvik och Ala Nya Aktiebolag, Söderhamm, Sweden
Munksunds Aktiebolag, Munksund, Sweden
Kalix Träindustri Aktiebolag, Vanafjärden, Sweden

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Sulphite Pulp—Paper and Board
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Bleached Sulphite—Bleached Soda Pulp
Howard Smith Paper Mills, Ltd.
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Selling Agents **THE PULP & PAPER TRADING CO.**
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EXPORTS

Exports of paper and paper products from the United States registered a slight increase in August as compared with shipments in the preceding month but were below the value of exportations in the corresponding month last year, according to official statistics compiled and issued by the U. S. Department of Commerce in Washington. Exports during August last totaled in value $2,459,585, against exports of a declared value of $2,412,479 in July of this year, and $2,893,477 in August, 1929. The August exports brought the total for the first eight months of the current year up to $21,593,641, showing a decline from the exports valued at $24,865,612 in the similar period a year ago.

Exports of newsprint paper from the United States in August amounted to 1,536,712 pounds, valued at $65,993, against 1,276,173 pounds of a value of $50,507 in the preceding month, and 2,080,852 pounds of a value of $75,954 in August, 1929. Uncoated book paper exports in August reached 2,648,100 pounds, valued at $172,957, compared with 1,904,401 pounds of a value of $128,601 in July last, and 3,159,680 pounds of a value of $219,296 in August last year. Wrapping paper exports during August were valued at $215,826, recording a decrease over the shipments valued at $222,456 in the preceding month, and also slightly under the exports of a value of $216,938 a year ago in the same month. Exports of writing paper in August were valued at $159,578, compared with $228,852 in August last year, while tissue and crepe paper shipments amounted in value to $83,703 in August, against $114,653 a year ago.

Exports of boxboard or paperboard and strawboard in August reached a value of $117,730, compared with $128,827 in the similar month of 1929, while shipments of other paperboard were valued at $107,659 in August, against $178,661 in August last year.

IMPORTS

Wood Pulp

Reports generally tell of more activity in the imported wood pulp trade, and there are indications that the market is gradually working into a steadier, if not firmer, technical position. Signs are that spot stocks of foreign pulp in the United States are being worked off, importations are running nearer to normal tonnage than earlier in the year, and the situation from a supply standpoint at primary sources abroad appears to be on the mend. Producers in Scandinavia and in other European countries are reported curtailing their output of pulp to a considerable extent in some cases, and there is not the pressure to sell that was observed a few months ago. The market is still altogether a buyer's market, but the buyer hasn't matters quite as much in his favor as was the case not long ago.

Prices of foreign pulps seem to have steadied on levels which would appear to be bottom for the long and drastic decline seen in market values of pulp this year. There are instances coming to light now and then of sellers granting further concessions to move certain lots of pulp, but from a general standpoint, prices are holding to the levels which have been quoted in recent weeks, and consumers starting out to buy in the market are not finding it an easy task to break through these established price levels. Producers abroad contend that most classes of chemical pulp are selling today at below cost, and this doubtless is true in numerous instances. Obviously, if this is so, prevailing prices cannot continue indefinitely, as any commodity cannot be sold under cost of manufacture for long.

Imports of chemical pulp into the United States in August amounted to 113,323 long tons of all grades, of a declared value of $6,003,881, compared with 98,448 tons of a value of $5,495,455 imported in the preceding month, and 127,234 tons of a value of $7,303,416 in August, 1929, according to official statistics compiled and issued by the U. S. Department of Commerce in Washington. The August imports brought the total for the first eight months of this year up to 902,684 long tons, giving a monthly average of 117,755 tons, showing a decrease as contrasted with a total of 942,040 tons or a monthly average of 117,755 tons imported in the corresponding period last year. Thus, imports this year, considering the general business depression, have held up remarkably close to the record-breaking importations during 1929, being but 40,000 tons less for the eight-month period than last year in the similar time.

Imports of mechanical pulp in August were 18,983 long tons, valued at $470,732, against 15,345 tons of a value of $431,662 imported in the preceding month, and 22,081 tons of a value of $543,973 in the corresponding month a year ago. Groundwood imports during the first eight months of the current year reached 169,279 tons, valued at $4,673,396, compared with 150,327 tons of a value of $3,798,804 in the same period last year.

Imported bleached sulphite of prime quality is quoted at three cents a pound upwards ex dock New York and other American Atlantic ports, with some grades ranging in price as high as 4.25 cents. Prime strong unbleached sulphite is resting on a price level of 2.20 to 2.25 cents a pound ex dock, while prime easy bleaching sulphite is around 2.45 cents, and ordinary Mitscherlich unbleached sulphite is quoted at 2.25 cents. Kraft pulp of prime Scandinavian quality is on a price range of 1.65 to 1.75 cents a pound ex dock, the higher figure being named on papermaking grades and the lower on kraft for board mills. Foreign groundwood is quoted at $32 per short ton for dry and $31 for moist pulp Atlantic seaboard.

Current market quotations ex dock New York, and receipts at the port of New York during October, 1930, follows:

Bleached sulphite, No. 1	3.00– 4.25
Unbleached sulphite, strong No. 1	2.20– 2.35
Unbleached sulphite, No. 2	2.10– 2.25
Easy bleaching sulphite	2.40– 2.60
Mitscherlich, unbleached, genuine	2.75– 3.00
Mitscherlich, unbleached, ordinary	2.25– 2.40
Kraft, standard Swedish	1.65– 1.85
Groundwood, per ton (dry)	32.00–33.00

Castle & Overton, Inc., 3,478 bls. from Hamburg; Lagerloef Trading Co., 940 bls. from Kemi, 153 Helsingfors, 170 Viborg and 1,521 Kotka; Daniel M. Hicks, Inc., 128 bls. from Hamburg; M. Gottesman & Co., 1,150 bls. from Rotterdam, 1,500 Gothenburg, 2,500 Iggesund and 800 Sibenic; Chemical Bank & Trust Co., 1,345 bls. from Oslo; Atterbury Bros., 830 bls. from Oslo; E. M. Sergeant Co., 1,347 bls. from Gothenburg and 150 Oslo; Kidder, Peabody & Co., 309 bls. from Gothenburg; Price & Pierce, Ltd., 250 bls. from Gothenburg; Parsons & Whittemore, 2,160 bls. from Gothenburg; Johaneson, Wales & Sparre, 2,385 bls. from Gothenburg, 2,400 Sundsvall, 1,750 Soraker and 205 Oslo; Lunham & Reeve, 339 bls. from Kotka; Stora Kopparberg Corp., 450 bls. from Skutskar; Bulkley, Dunton & Co., 2,400 bls. from Sundsvall, 4,250 Iggesund, 6,900 Stugsund, 1,500 Gefle, 1,950 Hernosand and 79 Rotterdam; Scandinavian Pulp Agency, 250 bls. from Soraker; Guaranty Trust Co., 250 bls. from Soraker, 311 Hamburg and 26 Gothenburg; Brown Bros. & Co., 5,000 bls. from Norrsundet; J. Andersen & Co., 6,000 bls. from Hernosand; Pagel, Horton & Co., 1,250 bls. from Gefle; A. P. W. Paper Co., 1,711 tons from Sheet Harbor, N. S.; McLernon & Co., 7,675 bls. from Chandler; Norwegian-American Line, 1,340 bls. from Oslo; Irving Trust Co., 450 bls. from Hernosand; New Haven

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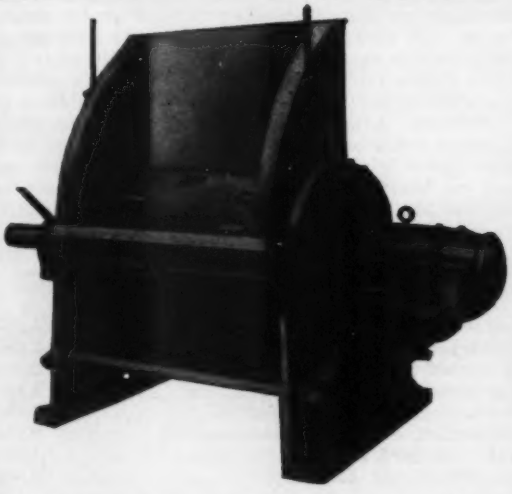

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Pulp and Board Co., 10,787 bls. groundwood from Bridgewater, N. S.; Order, 403 bls. from Hamburg, 4,650 Hernosand and 400 Oslo. Pulpwood—Chase National Bank, 18,642 cords from Archangel; Order, 4,211 cords from Archangel.

Paper Stock

Imports of papermaking rags into the United States are steadily decreasing. During the month of August, imports amounted to 16,196,087 pounds, valued at $242,124, compared with 18,525,668 pounds of a value of $421,875 imported in July this year, and 38,296,205 pounds of a value of $856,450 in August, 1929. During the first eight months of this year imports totaled 224,525,709 pounds, showing a sharp decline as contrasted with 291,413,266 pounds imported in the similar period last year. Imports of all other paper stock in August amounted to 16,447,414 pounds, against 22,095,931 pounds in the same month a year ago, while for the first eight months of the current year, importations were 178,984,564 pounds, compared with 181,410,170 pounds in the corresponding time of 1929.

Imports last month were small, judging from receipts through the port of New York. Arrivals of all kinds of paper stock excepting wood pulp at the port of New York in October, these data being taken from manifests of steamers reaching that port last month, were as follows:

Old Rope—George W. Millar & Co., 62 coils; Castle & Overton, Inc., 108 coils; Brown Bros. & Co., 136 coils; Ellerman's Wilson Line, 18 coils; R. M. Gray, Inc., 24 coils; United Fruit Co., 2 bls.; Furness, Withy & Co., 98 bls.; N. E. Berzen, 110 bls.; International Trust Co., 93 bls.; Order, 89 coils.

Old Bagging—Darmstadt, Scott & Courtney, 95 bls.; Brown Bros. & Co., 61 coils; Banca Commerciale Italiana Trust Co., 1,037 bls.; R. F. Downing & Co., 144 bls.; International Acceptance Bank, 51 bls.; E. Butterworth & Co., 69 bls.; Castle & Overton, Inc., 276 bls.; Chemical Bank & Trust Co., 77 bls.; T. D. Downing & Co., 98 bls.; E. J. Keller Co., 67 bls.; Order, 117 bls.

Rags—E. Butterworth & Co., 58 bls.; E. J. Keller Co., 280 bls.; Castle & Overton, Inc., 483 bls.; S. Birkenstein & Sons, 237 bls.; J. Reiss & Co., 50 bls.; Darmstadt, Scott & Courtney, 124 bls.; Fritz Stern, 36 bls., Victor Galaup, Inc., 40 bls.; Walker Goulard, Plehn Co., 2 bls., Katzenstein & Keene 212 bls.; J. Cohen & Sons, 31 bls.; International Trust Co., 174 bls.; Second National Bank of Boston, 9 bls.; National City Bank, 50 bls.; Chase National Bank, 119 bls.; New York Trust Co., 46 bls.; Chemical Bank & Trust Co., 153 bls.; Bank of New York & Trust Co., 153 bls.; Standard Bank of South America, 17 bls.; Baring Bros. & Co., 60 bls.; Barrett Co., 124 bls.; Amtorg Trading Co., 16,937 bls.; C. R. Spence & Co., 80 bls.; Bull Insular Line, 5 bls.; Brown Bros. & Co., 168 bls.; A. W. Fenton, Inc., 33 bls.; Order, 263 bls.

Miscellaneous Paper Stock—Daniel M. Hicks, Inc., 51 bls.; E. H. Silberman Co., 10 bls.; Goschens & Cunliffe, 28 bls.; R. M. Gray, Inc., 21 bls.; Baring Bros. & Co., 264 bls.; Banca Commerciale Italiana Trust Co, 386 bls.; Brown Bros. & Co., 52 bls.; W. D. Andrews, 84 bls.; First National Bank of Boston, 78 bls.; Milton Snedeker Corp., 64 bls.; J. Cohen & Sons, 16 bls.; Irving Trust Co., 101 bls.; International Trust Co., 108 bls.; American Express Co., 55 bls.; E. J. Keller Co., 108 bls.; Order, 58 bls.

Paper

Imports of paper into the United States in August last were valued at $10,892,707, showing a decline as compared with importations of a value of $12,299,117 in the preceding month, and a larger decrease as contrasted with imports valued at $13,985,751 in the corresponding month last year, according to official figures compiled by the U. S. Department of Commerce in Washington. Paper imports during the first eight months of this year reached a total value of $98,594,734, against $105,443,734 in the similar period of 1929.

Paper imports during October were of fair volume, taking the arrivals at the port of New York as a criterion. Receipts of paper of all kinds at that port last month, these data being taken from manifests of steamers reaching New York during the month and therefore unofficial, were as follows:

Printing—J. Henschel & Co., 11 cs. from Hamburg; Panama Mail Steamship Co., 217 bls. from Hamburg; Perkins-Goodwin Co., 1,367 reels from Hamburg; E. Dietzgen & Co., 98 cs. from Rotterdam; Kennedy & Co., 4 cs. from Rotterdam; C. Bruening, 286 reels from Rotterdam; P. C. Zuhlke, 36 cs. from Antwerp; The Times Co., 163 reels from Gothenburg; Scripps-Howard Supply Co., 518 reels from Gothenburg; C. Steiner, 14 cs. from Bremen; W. H. Bell, 7,857 rolls from Liverpool, N. S.; T. N. Fairbanks, 60 cs. from Trieste and 143 cs. Genoa; Day, Madden Corp, 617 reels from Helsingfors; Baldwin Paper Co., 278 reels from Bremen and 63 reels Kotka; Heemsoth & Basse, 72 bls. from Rotterdam; Lunham & Reeve, 745 reels from Kotka; Keuffel & Esser Co., 38 rolls from Hamburg and 24 cs. Rotterdam; A. S. Zabriskie, 67 reels from Hamburg; New York Evening Post, 6 reels from Gothenburg; H. Reeve Angel & Co., 48 rolls and 24 bls. from Gothenburg; F. L. Kraemer & Co., 278 bls. from Gothenburg; International Paper Co., 4,407 rolls from Dalhousie, N. B.; Wilkinson Bros. & Co., 6 reels from Oslo; Bank of Montreal, 11,221 rolls from Corner Brook, N. F.; P. H. Petry & Co., 114 reels from Gothenburg; New York Telegram, 259 reels from Gothenburg; Guaranty Trust Co., 52 bls. from Hamburg; Order, 369 rolls and 98 bls. from Oslo; 210 bls. and 1,109 reels Hamburg; 2,073 rolls and 25 cs. Bremen, and 1,439 rolls Port Alfred, Can.

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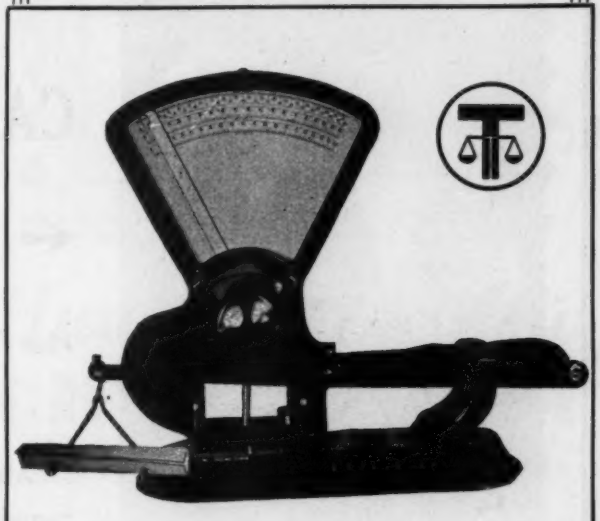

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PACIFIC SALES COMPANY, Security Bldg., Portland, Ore.

Wrapping—Sylvania Industrial Corp., 76 cs. and 43 bls. from Antwerp; Borregaard Co., 1,450 reels and 413 bls. from Gothenburg; Wilkinson Bros. & Co., 33 cs. from Gothenburg; C. Steiner, 60 bls. from Rotterdam; E. Dietzgen & Co., 19 cs. from Rotterdam; M. M. Cohen, 26 bls. from Hamburg; Central Hanover Bank & Trust Co., 29 bls. from Oslo; Standard Products Corp., 10 cs. and 8 rolls from Antwerp; Insight Paper Co., 188 reels from Oslo; Eastchester Paper & Cordage Co., 6 bls. from Gothenburg.

Cigarette—British-American Tobacco Co., 14 cs. from Southampton; H. H. Strauss, 788 cs. from Havre; DeMauduit Paper Corp., 752 cs. from Havre; M. Spiegele & Sons, 49 bls. from Genoa; P. J. Schweitzer, Inc., 228 cs. from Marseilles and 3 cs. Havre; Standard Products Corp., 239 cs. from Havre; L. C. Dever, 2 cs. from Trieste; American Tobacco Co., 800 cs. from Bordeaux; Liggett & Myers Tobacco Co., 12 cs. from Bordeaux; Order, 301 cs. from Havre.

Writing—E. F. Wilmot & Co., 4 cs. from Southampton; Guibont Freres & Co., 3 cs. from Havre and 7 cs. Southampton; R. F. Downing & Co., 4 cs. from Havre; Distinctive Writing Paper Co., 19 cs. from Havre and 7 cs. Southampton.

Filter—H. Reeve Angel & Co., 42 cs. from London and 133 cs. Southampton; J. Manheimer, 196 bls. from Southampton; A. Geise & Son, 4 cs. from Hamburg and 89 bls. Bordeaux; C. Sleicher & Scholl Co., 12 cs. from Hamburg.

Tissue—F. B. Vandegrift & Co., 20 cs. from Liverpool; F. C. Strype, 8 cs. from Hamburg; W. J. Byrnes & Co., 4 cs. from Southampton.

Hanging—C. A. Haynes & Co., 45 bls. from London; F. J. Emmerich & Co., 21 bls. from Hamburg and 23 bls. Liverpool; Guaranty Trust Co., 12 cs. from Hamburg; R. F. Downing & Co., 5 cs. from Southampton and 4 cs. Yokohama; J. E. Bernard & Co., 29 cs. from Liverpool, 9 bls. Southampton and 50 bls. Hamburg; Irving Trust Co., 33 cs. from Hamburg; F. G. Prager & Co., 45 bls. from Antwerp; Order, 14 bls. from London and 25 cs. Rotterdam.

Drawing—Keuffel & Esser Co., 115 cs. from Hamburg; H. Reeve Angel & Co., 19 cs. from London.

Photo—Gevaert Co. of America, 140 cs. from Antwerp; Globe Shipping Co., 148 cs. from Bremen; J. H. Schroder Banking Corp., 287 cs. from Bremen; J. J. Gavin & Co., 6 cs. from Southampton; Medo Photo Supply Co., 2 cs. from London; Davies, Turner & Co., 3 cs. from Hamburg.

Board—Bendix Paper Co., 30 cs. from Hamburg; Premier-Flong Co., 91 cs. from Bremen; H. Fuchs & Son, 58 bls. from Gothenburg; Robert Wilson Paper Corp., 30 rolls from Rotterdam, Lowy & Lowy, 12 bls. from Gothenburg; Colmar Paper Co., 16 cs. from Antwerp; Lagerloef Trading Co., 219 bls. from Kotka; Irving Trust Co., 15 cs. from Hamburg; Order, 257 cs. from Hamburg.

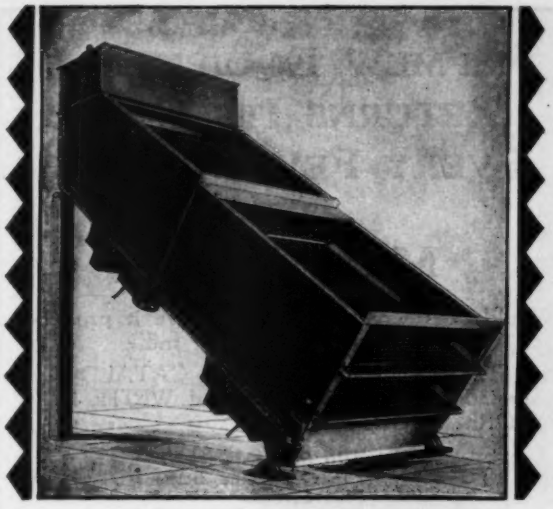
Miscellaneous—F. L. Kraemer & Co., 11 cs. from Southampton, 46 cs. Bremen, 28 cs. Havre and 9 cs. London; Keller-Dorian Paper Co., 54 cs. from Havre; Penson & Co., 11 cs. from Havre; Bank of America, 57 cs. from Hamburg; Hensel, Bruckman & Lorbacher, 40 cs. from Hamburg and 10 cs. Bremen; F. C. Gerlach, 34 cs. from Hamburg; P. H. Petry & Co., 5 cs. from Hamburg and 7 cs. Rotterdam; Whiting-Patterson Co., 9 cs. from Southampton and 2 cs. Rotterdam; Japan Paper Co., 2 cs. from Rotterdam, 8 cs. Yokohama, 2 cs. Havre, 3 cs. Southampton and 7 cs. London; J. H. Faunce, 11 cs. from Rotterdam; J. Beckhardt & Co., 14 cs. from Rotterdam and 21 cs. Bremen; P. C. Zuhlke, 21 cs. from Antwerp; J. E. Anderson, 11 cs. from Gothenburg; Henschel, Naeve & Co., 3 cs. from Bremen; Fuchs & Lang Co., 2 cs. from Bremen; D. C. Andrews & Co., 2 cs. from Gothenburg; Ipex, Inc., 16 cs. from Rotterdam; S. Bienfang, 6 cs. from Rotterdam; S. Gilbert, 14 cs. from Bremen; W. A. Foster, 15 cs. from London; B. F. Drakenfeld & Co., 23 cs. from Liverpool; Hudson Forwarding Co., 3 cs. from Havre; Universal Carloading & Distributing Co., 3 cs. from Havre, 2 cs. Bremen and 3 cs. Hamburg; Atlantic Forwarding Co., 32 cs. from Hamburg; Globe Shipping Co., 120 cs. from Rotterdam, 211 cs. Bremen and 2 cs. Havre; International Forwarding Co., 4 cs. from Hamburg, 44 cs. Antwerp and 2 cs. Yokohama; American Express Co., 32 cs. from Havre and 2 cs. Southampton; Coenca-Morrison Co., 2 cs. from Havre; Whitfield Paper Works, 3 cs. from Kobe; Marine Midland Trust Co., 13 bls. from Hamburg; William Wrigley Co., 125 cs. from Antwerp; F. Weber, 13 cs. from Trieste; National City Bank, 10 cs. from Rotterdam; L. Schulman & Co., 25 rolls from Bremen; Borden & Riley Paper Co., 7 cs. from Antwerp; F. C. Strype, 4 cs. from Yokohama; D. F. Young, 11 cs. from Hamburg; Tamm & Co., 5 cs. from Hamburg; Heemsoth & Basse, 3 cs. from Hamburg; Titan Shipping Co., 8 cs. from Hamburg; Quality Art Novelty Co., 6 bls. from Hamburg.

Seaman Severs Connection with Bryant

The Seaman Paper Company, Chicago, announces that it has severed its connection as mill sales agent for the Bryant Paper Co., Kalamazoo, Michigan. This action, taken recently, follows the sale of the Seaman paper merchandise stock and warehouse business in various cities, and is a further step in the reorganization of the Seaman plan of operation in the paper field.

The Seaman company will in the future sell printing paper only to paper merchants and to mill-tonnage consumers. The severance of the Seaman-Bryant connection terminates a relationship which has existed between the two organizations for 30 years. The good will of the Seaman company toward the Bryant mills remains the same as it has been over this long period of close business relationship.

Major O. M. Porter, manager of the National Kraft Paper Manufacturers Association, is now in the Pacific Coast territory in connection with plans for the kraft paper industry's economic stabilization with west coast manufacturers.



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CHIP SCREEN

Thorough removal of sawdust and fine particles!

Small floor space required!

Low power consumption!

Immense capacity!

Fully adjustable screening angle and vibration!

No lubrication!

No destructive shaking of supports or buildings!

No belts or pulleys!

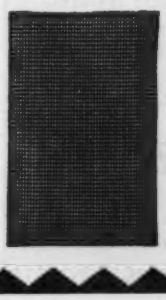
Trouble-free operation!

These are the features which make the Wood Chip Hum-mer a profitable investment for pulp and paper mills!

Write for Catalogue 54-P

The W. S. Tyler Company

Cleveland, Ohio



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WIRES

APMEW EQUIPMENT RETURNS ITS COST EVERY FEW MONTHS TO MANY USERS

Would your Company like to have it produce similar earnings in your mill?

See PAPER AND PULP MILL CATALOGUE page 306 for our catalogue and WRITE FOR INFORMATION.

APMEW Pulp Screens
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" Fine Screens
" Continuous Filters, Pulp Washers, Thickeners and Save-Alls.
" Rotary Sulphur Burners
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American Paper Machinery and Engineering Works

GLENS FALLS, NEW YORK

Canadian Manufacturer—Paper Mill Equipment, Ltd., 413 Drummond Building, Montreal, Que.
Pacific Coast Representative, K. B. Hall, Portland, Oregon

1864 1930

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For EVERY GRADE of PULP & PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made *the first endless paper machine felts manufactured in America.*

Seamless felts for fast running.
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Special felts to meet every condition.
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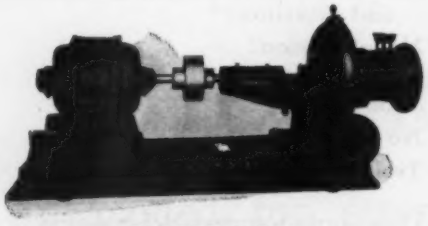

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Horizontal Split-Single Suction

STOCK PUMPS AGITATOR PUMPS

FOR ALL CONDITIONS

As we were among the first to develop a horizontal split, single suction stock pump, we have been thru the development stage and now have a stock pump which includes ALL the desired up-to-date features.

We also make a screw **agitator pump** for use in successfully **agitating** the present day high consistencies of stock.

WRITE for complete information

HAYTON PUMP & BLOWER CO.

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Canadian Manufacturer
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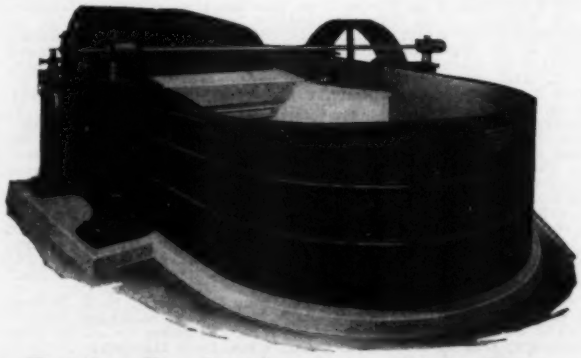
Port Arthur, Ontario



Putting Production into *High Gear*

In scores of paper mills whose annual schedules total millions of tons, Dayton High Speed Beaters are famous for their power, endurance and performance. A heavier furnish—faster beating—less jordaning—less power required,—these proven features will put your production in high gear, too.

Shown above: Dayton High Speed Beater, 56" dia. x 52" face, with cast iron tub. Six of these recently went into a prominent mill **because** they were the **right** beaters for a particular task! Years of technical experience—knowledge of paper making—prestige of serving the world's largest mills,—these are yours to command when you consult this skilled organization.

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Mansfield, Bolton & Kent
501 Fifth Ave.
New York City

Western Representatives
F. H. Godfrey
415 Lenora St.
Seattle, Wash.

DAYTON
High Speed Beaters

Import Committee's Annual Report

Warren B. Bullock, manager of the Import Committee of the American Paper Industry has issued under date of New York, September 30, 1930, a report covering the activities of the committee which points to a record of valuable accomplishments for the industry. The cases tried during the period, October 1, 1924, to September 30, 1930, amounted to 3,698 of which 2,609 were won, 931 lost, and 158 are now awaiting decision; pending cases number 1,973. As regards cases tried a great majority of these have been decided in favor of the arguments put forward in behalf of the Import Committee of the American Paper Industry, which naturally reflects high credit on the work of the committee in their efforts to enforce the provisions of the tariff act.

When the tariff act of 1922 was enacted there was no organization in the paper industry to co-operate with the Customs officials in the securing of proper interpretations of the law. The Import Committee was formed in 1924 and in the two years preceding its formation there were constant attempts on the part of importers to defeat the intent of the tariff act. Conditions are now altogether different, with Customs officials calling upon the Import Committee to co-operate with them in securing evidence to sustain what they and the Import Committee's experts believe to be proper interpretations of the new law.

A foreign office of the Import Committee has been established in order to check competition at the source by gathering information as to conditions in foreign paper markets whereby the home office may be advised in advance of shipments which are likely to be undervalued.

In reviewing some of the general activities of the Import Committee, it is pointed out by Mr. Bullock that certain cases were lost in the Customs Court through precedents established by the language of the Tariff Act of 1922. On the basis of information developed during the trial of these cases in court, Congress was convinced that the law needed changing as to the papers involved, and the Tariff Act of 1930 was accordingly modified to provide for the classification which the courts later ruled was not applicable under the Acts of 1922, so that the industry now has, thanks to the Import Committee, by a legislative enactment, the advantage of the classification earlier denied by the courts.

The work of the fiscal year, as set forth in the annual report in tabular form records cases awaiting action, 1,973; cases decided during the year, 1,666; cases won (involving increases in duties or penalties, or both), 1,153. An analysis is also given of the committee's work in connection with particular grades of paper, ranging from Absorbing to Wrapping.

The report closes with an acknowledgment "of the excellent and most conscientious work of government officials in their efforts to construe properly the law so that justice may be done to domestic and importing interests alike;" and it points with pride to the appreciation by government agencies of the assistance given to them by the Import Committee of the American Paper Industry. Other industries have followed the excellent example set by organizing similar enforcement organizations and it is pardonable on the part of Manager Bullock, in closing his annual report, to declare that "an activity so valuable as to be duplicated by other industries deserves the heartiest support of the industry which was first to devise this program of co-operation with the government for the enforcement of the tariff law."

Merger of Board Mills

R. B. McEwan & Sons and McEwan Brothers, paperboard manufacturers, Whippany, N. J., and the Newark Box Board Company, Newark, N.J., have formed a merger and will henceforth operate under the name of McEwan Mills Associates. The consolidation of the companies will result in an increase of output to approximately 400 tons daily.

The stock in the company is all owned by the McEwan family, the Newark mills at Blanchard and Ferry streets having been officered originally by Fred McEwan and Frank McEwan. R. B. McEwan, Jr., will have charge of the sales office at 500 Fifth avenue, New York.

You Can Swing This Gate Valve Open In A Jiffy

THE swing top on the Eastwood "Perfection" Quick-opening Gate Valve makes handling pulp stock easy, even by hand. Or you can have any special operating mechanism, such as cylinders for air, water or steam drives.

Because Eastwood has been concerned since 1877 with the unusual operating conditions of paper and pulp mills, it is only natural that Eastwood "Perfection" Valves should have built right into them the features you want.

Our gate valves are furnished in Semi Steel and "Perfection" Acid Bronze. Other types of valves furnished in "Perfection" Alloys such as Stainless Steel, Aluminum Bronze, etc.—adapted to meet all of your requirements.

EASTWOOD WIRE CORPORATION

Since 1877

Belleville, N. J.

"American Paper Made on American Wires"

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"Perfection" WIRES

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Over Fifty Years

Experience in the manufacturing of wires for American and Foreign paper makers and the ever increasing use of Appleton Wires testify to their quality.

Looms of our own design, wire drawn in our own plant to specifications derived from exhaustive research, and carefully trained operators make this high quality possible.

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APPLETON WIRE WORKS INC., APPLETON, WIS.

Foreign Trade Opportunities

The following foreign trade opportunities are issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce. Those interested are requested to communicate with the Bureau at its offices in Washington or New York or its branch offices in other cities, in every case mentioning the number of the inquiries referred to.

No. 47914—Paper cups, 200,000. Vigo, Spain. Purchase and agency desired.

No. 47885—Envelopes, window, and couche paper for magazines. Rio de Janeiro, Brazil. Agency desired.

No. 47942—Tissue fruit wraps. Port Elizabeth, South Africa. Purchase desired.

No. 47984—Paper cartons, and small round cartons with perforated metal tops for powder. Kingston, Canada. Purchase desired.

No. 47985—Printing papers, white foolscap, brown tissue, envelopes, and blotting papers. Cocanada, India. Purchase and agency desired.

No. 47978—Rosin. Stettin, Germany. Agency desired.

No. 48142—Caustic soda. Havana, Cuba. Agency desired.

No. 48166—Wrapping papermaking machinery. Montevideo, Uruguay. Purchase desired.

No. 48239—Box covering paper for use as covering for containers of cosmetics. Budapest, Hungary. Purchase desired.

No. 48174—Cardboard. Montreal, Canada. Purchase desired.

No. 48170—Fiber insulating and wall boards. Hanover, Germany. Purchase and agency desired.

No. 48186—Newsprint paper. Sao Paulo, Brazil. Agency desired.

No. 48142—Rosin. Havana, Cuba. Agency desired.

No. 48153—Rosin. Hanover, Germany. Agency and purchase desired.

No. 48181—Sulphur. Amsterdam, Netherlands. Purchase desired.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912,

Of The Paper Industry, published monthly at Chicago, Illinois, for October 1, 1930:

State of Illinois, County of Cook, ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Edward B. Fritz, who, having been duly sworn according to law, deposes and says that he is the publisher of The Paper Industry and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Edward B. Fritz, 333 N. Michigan Ave., Chicago, Ill.: Editor, A. Scott Dowd, 333 N. Michigan Ave., Chicago, Ill.; Managing Editor, A. Scott Dowd, 333 N. Michigan Ave., Chicago, Ill.; Business Manager, Edward B. Fritz, 333 N. Michigan Ave., Chicago, Ill.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) Edward B. Fritz, 333 N. Michigan Ave., Chicago, Ill.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is ..... (This information is required from daily publications only.)

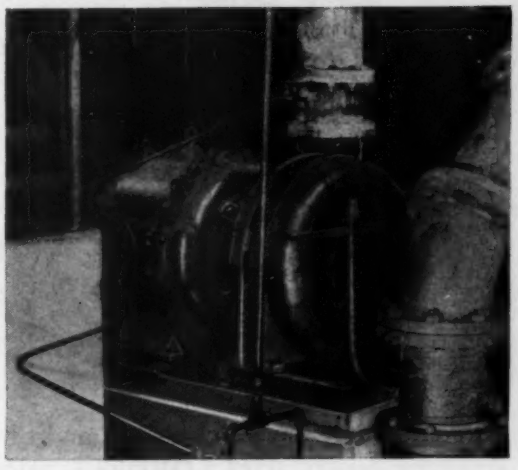
EDWARD B. FRITZ,

(Signature of editor, publisher, business manager, or owner.)

Sworn to and subscribed before me this 10th day of October, 1930.

[SEAL] MARGUERITE FREYERMUTH, Notary Public.

(My commission expires Jan. 9, 1934.)



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WHERE vacuum pumps must run continually at full load, uninterrupted service is assured by the installation of Nash Hytors.

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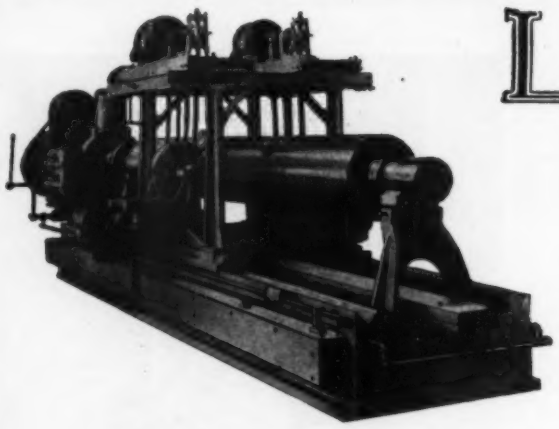

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Direct connected, completely enclosed, geared driving head.

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Complete protection of collector-wires, feed screw and all moving parts.

The automatic crowning device and the provision for leveling the bed, exclusive features of LOBDELL grinders, retained and improved.

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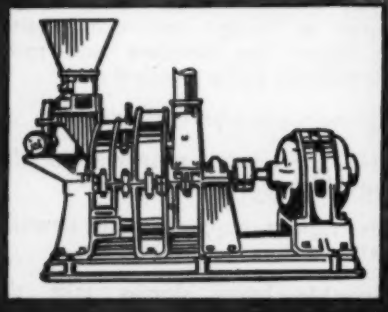

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